### COMMITTEE TO STUDY ANTICIPATED SEWAGE TREATMENT NEEDS

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Representative of Local Government

October 23, 1986

Md. Y 3. SE 51 :2/S /987
Maryland. Committee to Study
Anticipated Sewage
Anticipated sewage treatment
needs in Maryland



### DEPARTMENT OF THE ENVIRONMENT

201 WEST PRESTON STREET • BALTIMORE, MARYLAND 21201
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William Donald Schaefer Governor Martin W. Walsh, Jr. Secretary

Mrs. Ruth A. Hodgson Maryland State Law Library Courts of Appeal Building 361 Rowe Blvd. Annapolis, Maryland 21401



RE: Committee to Study Anticipated Sewage Treatment Needs

Dear Mrs. Hodgson:

Pursuant to your request, find enclosed copies of comments that were submitted to the Committee. Please note the following:

- 1) George W. Johnstone and and Bryan Moorhouse did not submit any written material. A summary of their oral comments can be found in the meeting minutes of 5/18/87 and 3/23/87 respectively.
- 2) Raquel Sanudo did not submit any written comments.

I hope this information meets with your needs.

Very truly yours,

MAR 18 1992

Jon R. Nuffer

Fiscal Specialist

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JRN: lp Enclosure

COMMITTEE TO STUDY ANTICIPATED SEWAGE TREATMENT NEEDS

# TECHNICAL ASSISTANCE TO MARYLAND'S WASTEWATER TREATMENT PLANTS A BRIEFING AND CONCEPT PAPER

Since 1983 on-site, over-the-shoulder operations training has been available to the staffs of Maryland's public sewage treatment plants. This help has largely been targeted to plants with obvious, chronic discharge violations, such as BOD, suspended solids, fecal coliform, excess residual chlorine, or low pH. Initially, the program was sponsored solely by the Maryland Center for Environmental Training at Charles County Community College, which developed and put the program into motion with grant funds made available by the U.S. EPA in 1983. Later, additional funds were appropriated under the Chesapeake Bay Initiatives package, and \$60,000 is now annually made available to the program through a Health Department/OEP contract with MCET. Currently the program is jointly administered by MCET and OEP, with personnel from both agencies working cooperatively at an average of about twelve plants during any particular time frame.

The purpose of the program is to help plants treating sewage produce a cleaner effluent, save money, and develop a more qualified staff. The first of these objectives obviously is paramount, in keeping with the Chesapeake Bay clean-up and with EPA's strenuous NPDES enforcement goals. The work of improving effluent, and thus plant compliance, is divided into three segments: diagnosis, correction through operator training and

technical assistance, and follow-up through four seasons to assure the capability of the facility during all weather extremes.

Diagnosis consists of a thorough evaluation of process control methods and strategies (sometimes we find that none are practiced), analysis of the plant effluent in MCET's lab, and calculation of the theoretical limits, hydraulic and organic, of each unit process in the facility, to assure that proper design parameters were utilized at construction. At diagnosis unit processes not functioning appropriately are noted, as are missing or incorrect control strategies. Based on this diagnosis, a training plan and specific objectives for the plant's future performance are established, jointly, between the technical assistance staff and the plant superintendent.

Training and technical assistance are always plant specific, and are always aimed first at improving the operator's ability to control his plant, by manipulating the various unit processes to achieve better results. Too often operators, even certified and experienced ones, assume fatalistically that they cannot control what happens in their plants, that all they can do is accommodate themselves to a static and unyielding system, a system which does not permit flexibilty or control. But biological treatment systems are always eccentric, and require that daily monitoring through trend charts, be used to determine optimum process parameters. Those perameters invariably are different at different facilities. One does not try to force different plants into the same operating mold; rather, one tries to optimize each

for a longer period, in order to help the operator devise ways to "work around" the design flaws or equipment failure.

The program has been extremely well received by the twentyodd participating communities, as can be illustrated by
correspondence received from those communities. Probably the
greatest reason for its popularity (ignoring for the moment that
the service is cost free) is that the technical assistance staff
is committed to approaching its work with a strong spirit of
collegiality and cooperation. That staff, after all, has a depth
of operating experience, and encourages the perception that the
program is, in the end, only a group of highly experienced operators
helping other operators. The idea that it is allied with OEP's
enforcement program has to be strictly discouraged, or the trust and
cooperation of the operators can be easily lost.

Operators are strongly encouraged to participate actively with the trainer, both in defining their plants' problems and in outlining appropriate solutions. For example, early in every project a set of trend charts is developed, so that operators can begin to relate specific process anomalies to specific trends. The operator gathers data on a daily basis, enters them on line charts using colored pens, and, with the technical assistance consultant, interprets the accumulating information and begins to make appropriate process adjustments. From the outset, the operator is treated as a valued professional who is a key part of the solution.

Implicitly, there are certain important questions about how good environmental enforcement and technical assistance ought to be

organized and delivered by Maryland, as it seeks to protect its fragile marine resources while, simultaneously, protecting local government interests. As a result of its four-year involvement in both areas, the MCET staff has come to several conclusions.

- 1. For enforcement to be credible it must be fair and consistent. It does no good to harass a town whose 50,000 gallon-per-day discharge is in full NPDES compliance, simply because the operator is uncertified, while a small city a few miles away, with a 2,000,000 gallon-per-day discharge into the same receiving stream, is widely known to chronically violate its solids and BOD parameters.
- Not even Solomon, himself, could blend a credible mix of enforcement and technical assistance for delivery by the same person. The two functions are both greatly needed, but every effort should be taken by the State to avoid their mutual confusion. It is simply not feasible for an inspector to recommend a particular operations strategy and then, later, to have to initiate an enforcement procedure because the strategy did not work. Inspectors should inspect, vigorously and fairly, so that the State may punish communities or industries which chronically violate discharge permits. But neither inspectors, nor the larger branch of whatever agency they are attached to, should be expected to deliver credible or effective technical assistance. Police should not be judges, or teach law. The relationship of an inspector to "his" plants ultimately must be adversarial. Although, of course, it is hoped that a useful level of discourse will always be maintained. There are now forty-one states with some sort of EPA or state supported technical assistance program aimed at bringing sewage

treatment plants into better NPDES compliance. In only two are the inspectors given a significant technical assistance role. (This is not to argue that a sound technical assistance program cannot reside within state government, but only that functions should be clearly separated across agency or bureau lines. New York operates a superb technical assistance program from within its state environmental protection agency.)

- 3. An effective technical assistance program must involve not only operators and inspectors, but the community's elected officials as well. Without the support of elected officials who, by and large, know little of the nuts and bolts of environmental protection, the line staff often feel vulnerable and unappreciated as they attempt to carry out necessary and, sometimes, costly changes. Community leadership must "buy into" the program's goals, so that the operations staff clearly feel that they are carrying out not just MCET or state program objectives, but their own community's as well.
- 4. Finally, operations assistance is made immensely more effective by corresponding management assistance to whomever makes overall utility policy for a community. Usually, chronic non-compliance at the plant is ultimately a symptom of inattention at City Hall, fiscal inattention in particular. Help with debt management, rate structure reform, staffing, preventive maintenance planning, collections, financing, expansion, and other related problem areas often tends to help rebuild a community's commitment to excellence in utility operations, without which help at the treatment plant may be wasted.

### WASTEWATER TREATMENT PLANTS ASSISTED BY MCET UNDER 104 PROGRAM

FACILITY	CONTACT	PHONE NO.
ACCIDENT	Marjorie K. Fratz Town Clerk	826-8149
BOWLING GREEN	John Slider Allegany San. Comm.	777-5942
CAMBRIDGE	Dave Hodgson Plant Supt.	228-4466
CENTREVILLE	Scott A. Hancock Town Manager	758-1224
CLIFTON ON THE POTOMAC ST CHARLES LAGOON	Steve Elder Supt. Water & Wastewater	934-3380
CRESAPTOWN	John Slider Allegany San. Comm.	777-5942
FAIRMOUNT	Robin Street Chairman, Somerset San. Comm.	651-3831
GEORGES CREEK	John Slider Allegany San. Comm.	777-5942
HAGERSTOWN	Bob Semmler Plant Supt.	790-3200
HALFWAY	Al Nicodemus Plant Supt.	223-8697
HANCOCK	Joe Evard WW Operator	678-5622
INDIAN HEAD	Dave Spinney Town Manager	743-5511
MANCHESTER	Doug Myers Supt Water & Sewerage	239-3200
MATTAWOMAN	Jerry Michael Dir., Public Wks.	645-3632
MILLINGTON	Eddie Robinson Mayor	928-3880
OXFORD	Doug Abbott Town Engineer	226-5740

FACILITY	CONTACT	PHONE NO.
PINE HILL RUN	JIM RITTER Supt.	862-1360
PITTSVILLE	BILL GORDY	835-8872
PRINCE FREDERICK	DENNIS BROBST	535-1600
PRINCESS ANNE	ROBIN STREET Somerset Co. San. Comm.	651-1818
QUEENSTOWN	BILLY RADA, SR. TOWN COMM. PRESIDENT	827-7646
ROCK HALL	JOE MANGINI TOWN MGR	639-7611
SECRETARY/E. NEW MKT	SAM FAIRBANKS Water & Wastewater Supt.	943-3113
SHARPTOWN	JEFF VAN ZANDT WATER & SEWERAGE SUPT.	883-3747
SNOW HILL	RICHARD WATSON WASTEWATER SUPT.	632-2080
THURMONT	JAMES F. BLACK MAYOR & PRESIDENT	271-7313
WESTMINSTER	CARROLL DELL DIR., PLANNING & PUB WKS	849-9000

# CURRICULUM FOR APPRENTICESHIP PROGRAM ENVIRONMENTAL SYSTEMS OPERATOR APPRENTICE MARYLAND ENVIRONMENTAL SERVICE

The two-year curriculum for an Environmental Systems Operator Apprentice is composed of three parts: (a) Basic Instructions, (b) Related Instructions, and (c) On-The-Job Training.

During the two-year period, the apprentice is required to complete 288 hours of correspondence courses and classroom instruction (144 hours per year) and 1,700 hours of on-the-job training (850 hours per year).

A training supervisor is designated for each apprentice. The training supervisor is responsible for overseeing the apprentice's correspondence instruction, for approving in advance related instruction, and for assigning appropriate work tasks for the apprentice to complete the required hours of on-the-job training.

### I. Basic Instructions

Four courses in basic instructions are provided by the California State University at Sacramento and are study-at-home correspondence courses. Apprentices are required to complete the two courses on wastewater and water treatment (A and B) and are encouraged to also complete the courses on collection and distribution systems (C and D).

- A. Operation and maintenance of wastewater treatment facilities (mandatory) 60 hours
- B. Operation and maintenance of water treatment facilities (mandatory) 60 hours
- C. Operation and maintenance of wastewater collection systems(optional)60 hours

D. Operation and maintenance of water distribution systems (optional)- 60 hours

### II. Related Instructions

Related instructions are classroom courses designed to give the apprentice additional training to be an Environmental Systems Operator I. Because apprentices are located in different areas in the State, no specified course of related instructions can be designed. With guidance and counseling from his/her training supervisor, each apprentice will complete enough courses to fulfill the total remaining requirement of 48 hours for the two-year apprenticeship. (Note: Community colleges which provide instructions for Environmental Systems Operators are Allegany, Anne Arundel, Catonsville, Cecil, Charles, Chesapeake, Dundalk, Frederick, Wor-Wic Tech, and Hagerstown Junior College.) All related instruction for the apprentice must be approved in advance by the apprentice's training supervisor.

Below is a list of general topics which an apprentice will find to be useful in learning more about the environmental facility to which he/she has been assigned. Courses at a community college will cover some, if not all, of the specific items listed under each topic. In some situations, it may be necessary for the Maryland Environmental Service to provide an instructor to teach these topics on—site at the environmental facility.

### A. Mathematics Specific to Environmental System Facilities

Basic math and algebra, including computation of areas and volumes, conversion of decimals to fractions, percentages, concentrations, rate problem solving, solving for unknown variables in linear equations, and other mathematical procedures.

Note: Apprentice may take up to 8 hours per year of mathematics instruction.

### B. Preventive and Corrective Mechanical Maintenance

Proper techniques relating to preventive and corrective mechanical maintenance at environmental system facilities including wastewater treatment and collection systems and water treatment and distribution systems. Specific equipment includes centrifugal pumps, positive displacement pumps, air compressors and blowers, gear reduction units, chemical feed equipment, mechanical mixers, oil-fired heat exchangers, and mechanical aerators. Also included in this category are proper lubricant selection and lubricating techniques, power transmission repair and replacement, bearing removal and replacement, how to establish a preventive maintenance program, and troubleshooting.

### C. Preventive and Corrective Electrical Maintenance

Proper techniques related to preventive and corrective maintenance of electrical components at wastewater treatment and collection systems and water treatment and distribution systems. Specific equipment includes alternating and direct current electric motors, emergency power generation systems, electronic flow measuring equipment, electronic instrumentation, and magnetic starters. Also included in this category are the basic theory of electricity, proper safety procedures, proper use of electrical testing equipment and interpretation of resultant data, and troubleshooting electrical systems and their individual components.

### D. Description, Use, and Handling of Chemicals

Basic physical description of chemicals found in environmental system facilities, their function, and how they react, the determination of proper feed rates, environmental impact of specific chemicals, cost monitoring and control, safe handling procedures, responding to chemical spills, chemical toxicity and physical reactions resulting from exposure, and personnel safety.

E. <u>Safety Procedures for Environmental System Facilities Personnel</u>
Safety factors to consider before entering confined spaces, proper emergency responses to fires, personal injury, power outages, proper use of safety equipment including self-contained breathing apparatus and atmosphere analyzing equipment, and cardio-pulmonary resuscitation.

### F. Environmental Systems Process Control Procedures

Proper procedures used in developing and executing a process control strategy for environmental systems facilities utilizing, but not limited to, the following analytical procedures: pH, turbidity, alkalinity, carbonate stability, jar tests, chlorine concentrations, polymer feed rates, settlability of sludges, dissolved oxygen, suspended solids concentrations, temperature, and moisture content. Instruction can also include the different technologies for treating wastewater, including fixed filter media, activated sludge, rotating biological contact (RBC), lagoons, and trickling filters.

### G. Development of Communications Skills

Instruction may include, but not be limited to, interpretation of equipment manufacturers' literature for operation and maintenance procedures, interpretation of written and oral instructions, completion of laboratory data storage form records, and preparation of written reports.

Note: Apprentice may take up to 8 hours per year of communications instructions.

### III. Work Processes - On-The-Job Training

In addition to 120 hours per year devoted to basic instructions by correspondence courses and 24 hours per year of related classroom instructions, the apprentice will also be required to complete 850 hours per year of formal, supervised, on-the-job training. Categories for this training are listed below, together with the number of hours per category per two-year

period and the percent of time required. The apprentice will work closely with his/her training supervisor to ensure that all training categories are covered sufficiently. (Please note that there are 1,840 hours of scheduled work per year.)

## A. Nomenclature, Terminology, and Structural Components of Environmental System Facilities

85 hours (5%)

Apprentice will become familiar with the components of the assigned environmental system facilities through on-the-job training and work experience. Apprentice will be required to demonstrate a proficient knowledge of the assigned facility's general flow patterns, specific equipment or structures, names, locations, and other information concerning the facility as required.

### B. Environmental System Facilities Safety Procedures

170 hours (10%)

Training through work experience and on-the-job training will focus on safety procedures such as reaction to personal injury, chemical spills, fires, and electrocution, as well as effectiveness of good housekeeping procedures in preventing personal injury, safe chemical handling, and use of safety equipment such as atmospheric gas analyzers and self-contained breathing apparatus. Apprentice will be required to demonstrate a sound understanding of proper safety procedures as related to the assigned facility.

### C. General Environmental System Facility Duties

391 hours (23%)

Training through work experience and on-the-job training will involve miscellaneous duties for the operation of environmental system facilities. Among these are sample collection, general housekeeping, operation of lawn maintenance equipment, painting, equipment cleaning, motor vehicle operation, parts delivery and

pickup, simple carpentry and plumbing, and manual labor. Apprentice will be required to demonstrate the ability to successfully perform all of the general duties needed in the assigned facility.

### D. Laboratory Analysis

153 hours (9%)

Training through work experience and on-the-job training will include the required laboratory analysis of the assigned facility. Such analysis may include dissolved oxygen, alkalinity, temperature, moisture content, pH, chlorine residuals, dissolved solids, and turbidity. Apprentice will be required to demonstrate the ability to accurately perform all of the required laboratory analysis of the assigned facility.

### E. Environmental System Facility Employee Policies

17 hours (1%)

Training through work experience and on-the-job training will concentrate on rules and regulations of both the specific facility to which the apprentice is assigned as well as general Agency policy. Such policy may include health insurance benefits, sick leave, use of State vehicles, data recording, care of State equipment, oral and written reprimands, and retirement benefits and deferred compensation. Apprentice will be required to demonstrate a working knowledge of both facility and Agency policy.

### F. Preventive and Corrective Facility Maintenance

272 hours (16%)

Training through work experience and on-the-job training will include proper maintenance techniques needed to competently maintain and repair equipment commonly found in environmental system facilities. The procedures will include proper lubrication procedures, power transmission repair, observing preventive maintenance schedules, maintenance and replacement of bearings,

troubleshooting, and corrective maintenance on centrifugal, positive displacement, and progressing cavity pumps, preventive maintenance on air compressors and blowers, and other preventive and corrective maintenance techniques on a variety of equipment as found in the assigned environmental system facility. Instruction for the procedures may be oral or written, being derived from either technical journals or equipment manufacturers' literature. The apprentice will be required to demonstrate the ability to competently perform all of the required maintenance procedures of the assigned facility.

### G. Proper Operation of Environmental System Facility Equipment

170 hours (10%)

Training through work experience and on-the-job training includes proper operational procedures for environmental system facilities equipment. Procedures will include the starting, stopping, or adjusting of various mechanical and electrical devices such as pumps, air blowers, gear reduction units, chemical feeders, flow measuring equipment, automatic samplers, valves, and other equipment found in the assigned facility. Apprentice will be required to demonstrate the ability to competently perform all of the required tasks of the assigned facilities.

### H. Environmental System Facility Data Recordation

221 hours (13%)

Training through work experience and on-the-job training will focus on the importance and proper methods of data recordation. Such data recordation will include in-plant daily log books, water quality analysis results, meter and gauge readings, preventive and corrective maintenance reports, time cards, incident reports, and other data recording. The apprentice will be required to demonstrate the ability to competently perform required data recordation for the assigned facility.

### I. Troubleshooting Environmental System Facilities

221 hours (13%)

Training through work experience and on-the-job training will concentrate on recognizing and reacting to irregularities in environmental system facilities. Irregularities may include flow variations, noise, temperatures, vibrations, solid concentration fluctuations, pH changes, and other equipment irregularities as indicated by gauge and meter readings, analyses results, and audio-visual observation. The apprentice will be required to demonstrate the ability to competently recognize and react to irregularities in the facility to which assigned.

Total hours 1,700



Maryland Municipal League

# STATEMENT TO THE GOVERNOR'S COMMITTEE TO STUDY ANTICIPATED SEWAGE TREATMENT NEEDS MAY 12, 1987

The Maryland Municipal League is pleased that this committee is examining funding options to meet anticipated sewage treatment needs of local governments including the 76 cities and towns that operate sewage treatment plants. We hope that you will also look at technical assistance needs and possible streamlining of State policies and procedures to help cut the actual and potential costs of sewage treatment.

While the Maryland Municipal League applauds State efforts to improve water quality, we have consistently pressed for greater State assistance in implementing State water quality mandates. As of 1984, Maryland appeared to be the only state in the union calling for nitrogen removal and dechlorination and one of the most ambitious states in phosphorus removal. Stringent permit limitations for chlorine, nitrogen and phosphorous removal demand sophisticated treatment plant operations which add to the costs of capital construction plant operation, maintenance and operator training. An additional potential spillover effect may yet be the increased costs of higher liability exposures associated with mandates for more-difficult-to-attain effluent quality. Compliance with more ambitious effluent standards is more apt to drop simply because of the increased difficulty in meeting those standards.

Cities and towns need State help in maintaining affordable user fees for sewage service. When major sewer projects are initiated, user charges for small towns can be dramatically affected. In Delmar, Maryland, sewer collection system rehabilitation and sewage treatment plant construction will cost \$5 million by the time work is completed. To pay for this,

residential user fees went from \$80 to \$220 per year per household in a two-year period—even with 87-1/2% paid for with EPA and State grants and 12-1/2% with low interest State loans. Funding for this project, using only similar low interest State loans would easily require over \$1,000 per year user charges to pay for the same project.

As EPA construction grants are phased out in the coming years, we urge and recommend that the State continue its current construction grant program and if possible provide some additional State grant appropriations. In any event the revolving loan fund of federal monies should be interest free in order to encourage affordable sewer rates. Should any interest be charged on revolving loans, we suggest that interest rates be sufficient to generate only enough money to cover administrative costs of the program.

Other related issues need to be addressed to cut down the costs of construction, operation and maintenance of sewer systems. Permitting holdups have historically been a problem in Maryland. Delays of up to a year in approval for the design and construction of projects have occurred in the past. Eleventh hour changes in design approval have forced costly delays. In general, red tape in State processing of local projects has added to the costs of those projects. Those costs, in turn, have been reflected in higher user fees and increased demand for State assistance. We ask that this committee recommend means of streamlining the project permitting process.

In instances where the State has compelled local governments into land treatment rather than discharge into streams, State policy requires the grantee to perform all site evaluations and to drill monitoring wells. Both add costs that do not occur when stream discharge is permitted. Perhaps a larger issue is the potential liability exposure issue where years later groundwater pollution resulting from land application may result in extensive liability on the part of local governments—liability that would not exist were stream discharge of effluent permitted. We feel in such instances that some mechanism needs to be created whereby the State will assume a degree of potential liability when land application is the State's process of choice for local government use.

Lastly, this committee should note well the on-site technical assistance program currently provided on a small scale to local governments using the Maryland Center for Environmental Training (MCET). MML recently surveyed a sampling of the 20 or so municipalities that have received on-site technical assistance provided by MCET. We received only positive responses about the program's assistance in upgrading plant operation and permit compliance at no cost to the city or town. The program apparently does a good job of helping operators deal with the site-specific problems of their own plants. MML would support continuation and expansion of the program.

I thank you for the opportunity to address this group.



Regional Planning Council

2225 North Charles Street Baltimore, Maryland 21218-5767 (301) 554-5600 George F. Harrison, Jr., Chairman Alfred P. Gwynn, Executive Director

DRAFT FOR COMMENT Revised 7/27/87

MEMO TO: Committee to Study Anticipated Sewage Treatment Needs

FROM: Directors of Public Works Departments of Baltimore City and Anne Arundel, Baltimore, Carroll, Harford and Howard Counties

and Anne Arundel County Director of Utility Department

SUBJECT: Recommendations on Future Sewerage Facility Finance in Maryland

We have followed the discussions of the committee and have the following comments and recommendations which the committee may wish to consider at its meeting on August 10, 1987.

- 1. State Revolving Fund. In general, we endorse the principles incorporated in drafts on this fund presented to the committee by the State Department of the Environment. We are concerned that the revolving fund will not be able to fund some critical projects in an adequate or timely manner because:
  - (1) The total funding available to Maryland through the revolving fund and limited "state-only" grants will be substantially less than that now available from federal and state sources. See Column 10 of the attached table: loan funding for the three fiscal years FY 1992-94 is only about half of the grant funding for the three current and recent fiscal years FY 1985-87.
  - (2) Because the revolving fund will be established with 80 percent federal funds, federal requirements will apply to it. This means that we will continue to have multi-year delays and higher costs associated with inflation and over-restrictive federal requirements and that federal priorities can pre-empt state and local priorities in controlling the loan program.

The "circuit breaker" concept may have merit. We would like to see more specifics on how it could be applied to sewerage finance.

2. Continuation of SignIficant State Grant Program. As we testified to the committee on May 12, 1987, it is essential to bring our backlog of existing top priority sewerage facilities up to state requirements in an orderly and expeditious manner. To do this, it is necessary not only that local governments contribute more capital funds to construction projects but also that the state continue to maintain a significant grant program. These funds should be combined in a state and locally-funded grant program to fund some state top priority projects.

# PROPOSED FEDERAL AND STATE SEMAGE FACILITY CONSTRUCTION GRANT AND LOAN AUTHORIZATIONS

		C Latter Co.			HE VOL	VING LOAN FUNDS			TOTAL
		Federal				Federal		-	LOINE
Fiscal Year	(billions)	Maryland Share (millions)	Maryland (millions)	(millions)	(billions)	Maryland Share	Maryland	Total	Maryland
(1)	(2)	(3)	(4)	(5)	(9)		(8)		(10)
1985	\$ 2.4	\$ 59.2	\$ 11.2	\$ 70.4					
1986	2.4	59.2	V 0	200				,	\$ 70.4
1987	2.42	58.7	20, 13,4	0.00					68.6
1988	2	200.0	. b.03	1.6/			•		1.67
1000		79.0		D=+		•			•
6061	7:1	29.4			\$1.2	\$ 29.4	0.9 \$	\$35.4	
86	7.1	29.4		-	1.2	29.4	6.0 (act.)	15.4	
1661			2.0 (est.)		2.4	58.7		70.4	30.4
7661			2.0 "		1.8	44.0	00	20.00	1 5.21
1993			2.0 "		1.2	29.4	0.9	15.4	27.0
3.5	٠	.	2.0 "	1	9.0	14.7	* 0.9	20.7	22.7
Maryland Totals \$12.0	als \$12.0	\$294.6	è	٠.	\$8.4	\$205.6	\$44.5	\$250.1	\$821.2

To date only \$1.8 billion has been appropriated.

<sup>2</sup>To date only \$1.2 billion has been appropriated.

Spreliminary - from "Second Reader" bill. This includes \$10 million earmarked for nitrogen removal at sewage treatment plants in the Patuxent River Basin, which probably cannot be matched against Federal grants. 4The Annotated Code of Meryland, Section 9-347(b), provided that the combined state and federal share of sewerage facility construction grants not exceed 87.5 percent of the total project cost. Federal grants are 55 percent of total project cost and state grants are 32.5 percent of total cost. Because of processing lag for federal grants to local jurisdictions the state grant authorizations through FY 1987 had not risen to the amount to match the federal allocation provided for under state law. Maryland funds necessary to match 20 percent of federal revolving loans are deducted from the \$40 million estimated annual authorization and are shown in Column 8.

5The 1987 Federal Clean Water Act Amendments provide for state contributions to revolving loan funds to be 20 percent of federal contributions.

Estimate based on Committee to Study Anticipated Sewage Treatment Needs discussion on July 13, 1987.

- 5. Follow-through on Committee Interim Report. The committee's May 18, 1987 interim report proposed that its findings address three areas of concern:
  - (1) anticipated sewage treatment needs in Maryland;
  - (2) alternative means to assure that adequate funding is available to address these needs; and
  - (3) assessment of the potential for private sector funding involvement in funding and operation of waste water treatment plans.

We understand that the committee must prepare its legislative proposal this summer for the revolving fund. However, a number of questions remain to be answered in order to deal with the committee's concerns. These include the following:

- 1. What are the state's current sewage treatment needs? The committee's "survey assessment of sewage needs" is a big step toward answering that question. Additional work is needed to refine these estimates. For example, how much of the needs deal with bringing existing facilities up to state standards? How much deal with growth?
- What will be the state funds available, together with federal and local funds, to deal with our backlog of needs between now and the beginning of the loan program? What backlog will remain then? How much funds should come from state and local sources, together with Federal loan funds, to meet this backlog? What is the prospect for private funding? As a first rough estimate consider the following:

### Funds available FY 1988-90

	grant funds available:	\$117.5 million
State match	at 32.5% of project total:	69.4
	state subtotal:	\$186.9
Local 12.5%	of project total:	26.7
Total		\$213.6

Total current needs for local, state and	
federal funding from committee survey:	\$642.7
Total funding available through FY 1990	-213.6
Unfunded total	\$429.1
Years after FY 1990 to meet current state	
and federal projected needs with annual	
loans of \$40 million, assuming fund is	
replenished with additional grants!	\$429.1 ÷ 40 = 11.7

- 3. What additional funds beyond those now projected might be needed between now and the start of the loan fund for the following:
  - o to meet new state requirements for existing facilities (e.g., nitrogen removal)?
  - o to provide for necessary planned growth?

What federal, state, and local funds should be available to meet these needs? How much of our needs can be met with private funds? Will we be gaining or losing ground in meeting needs? 4. Is the current state priority system adequate to ensure that facilities with the worst and most extensive impact on state waters and their uses are funded first?

We appreciate the work the committee is doing on this important matter and we continue to offer any assistance we can to the committee.

Attachment

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, I AM PHILIP CLAYTON, MANAGER OF THE COOPERATIVE CLEAN WATER PROGRAM FOR THE REGIONAL PLANNING COUNCIL. THE FOLLOWING HELPED PREPARE THIS TESTIMONY:

- O FRANCIS KUCHTA, DIRECTOR OF PUBLIC WORKS, BALTIMORE CITY
- O THOMAS NEEL, DIRECTOR OF UTILITIES, ANNE ARUNDEL COUNTY
- O EUGENE NEFF, DIRECTOR OF PUBLIC WORKS, BALTIMORE COUNTY
- O JOHN T. STERLING, JR., DIRECTOR OF PUBLIC WORKS, CARROLL COUNTY
- O THOMAS F. SMITH, DIRECTOR OF PUBLIC WORKS, HARFORD COUNTY; AND
- O GEORGE F. NIEMEYER, DIRECTOR OF PUBLIC WORKS, HOWARD COUNTY

I WOULD LIKE TO INTRODUCE THE FOLLOWING WHO ARE PRESENT TODAY (INTRODUCTIONS).

SOME MAY WISH TO GIVE THEIR OWN TESTIMONY AND WE WILL ALL BE PLEASED TO

RESPOND TO THE COMMITTEE'S QUESTIONS.

WITH THE PROSPECT THAT THE FEDERAL GRANT PROGRAM FOR SEWERAGE FACILITIES WILL SUNSET AFTER FISCAL YEAR 1990, WE HAVE A UNIOUE OPPORTUNITY TO DESIGN A SEWERAGE FINANCING PROGRAM TO MEET MARYLAND'S TOP PRIORITY WATER QUALITY NEEDS COST-EFFECTIVELY INCREASINGLY FREE OF OVER-RESTRICTIVE FEDERAL GRANT PROCEDURES AND REQUIREMENTS.

I WOULD LIKE TO FOCUS, TODAY, ON FUNDING OF CAPITAL PROJECTS TO MEET EXISTING
WATER QUALITY AND HEALTH NEEDS. I WILL NOT DISCUSS OPERATIONS AND
MAINTENANCE, WHICH ARE FUNDED BY LOCAL GOVERNMENTS NOR WILL I DISCUSS NEW
FACILITIES FOR PLANNED URBAN GROWTH. SUCH FACILITIES CAN BE FINANCED BY LOCAL
AND PRIVATE FUNDS: STATE AND FEDERAL GRANT FUNDS ARE NOT NECESSARY FOR THIS
PURPOSE.

WE SEE TWO MANAGEMENT MECHANISMS AS NECESSARY TO ACHIEVE THIS PURPOSE. THESE ARE:

- 1. A LONG-RANGE FINANCIAL PLAN: AND
- 11. ADMINISTRATIVE SIMPLIFICATION.

I WILL SUMMARIZE THE RECOMMENDED CONTENTS OF BOTH OF THESE:

### I. LONG-RANGE FINANCIAL PLAN.

MOST OF OUR SEWERAGE FACILITY PROJECTS ARE MULTI-YEAR ONES. WE NEED A LONG-RANGE STATE FINANCIAL PLAN SO THAT WE CAN IMPLEMENT THESE PROJECTS EFFICIENTLY. THIS PLAN SHOULD INDICATE WHICH PROJECTS WILL BE FINANCED WHEN AND WITH WHAT FUNDS. THIS PLAN SHOULD BE JOINTLY DEVELOPED WITH LOCAL GOVERNMENTS TO BE EFFECTIVE FOR FY 1989, WHEN FEDERAL SEWERAGE FACILITY GRANTS WILL BE CUT IN HALF. THOSE WHO DRAFTED THIS STATEMENT WILL BE GLAD TO ASSIST.

THERE WOULD BE THREE TYPES OF FUNDING TO IMPLEMENT THIS PLAN AS FOLLOWS:

- 1. CONTINUATION OF STATE WATER QUALITY GRANTS, AS PROVIDED FOR UNDER SECTION 9-345 TO 350 OF THE ANNOTATED MARYLAND CODE, FOR SOLUTION OF TOP-PRIORITY STATE WATER QUALITY PROBLEMS;
- 2. FEDERALLY-FUNDED NO-INTEREST STATE REVOLVING LOANS, AS PROVIDED FOR IN THE 1987 CLEAN WATER ACT AMENDMENTS, FOR SECOND-TIER PRIORITY STATE PROBLEMS;
  AND
- 3. FEDERALLY-FUNDED BELOW-MARKET RATE STATE REVOLVING LOANS, ALSO PROVIDED FOR IN THE 1987 AMENDMENTS, FOR OTHER SEWAGE TREATMENT NEEDS.

I WILL EXPLAIN THESE THREE BRIEFLY:

1. STATE GRANT PROGRAM: THIS WOULD CONTINUE THE STATE GRANT PROGRAM WHICH IS NOW IN EFFECT. IT WOULD PROVIDE THE HIGHEST INCENTIVE FOR SOLUTION OF THE STATE'S TOP-PRIORITY WATER QUALITY PROBLEMS. IT COULD BE ESPECIALLY USEFUL IN FUNDING PROJECTS REQUIRED TO MEET STATE POLLUTION DISCHARGE PERMIT LIMITS BUT WHICH ARE NOT FUNDED BY FEDERAL GRANTS.

TOGETHER WITH THE ADMINISTRATIVE SIMPLIFICATION WHICH I WILL DISCUSS, IT WOULD PROVIDE FOR RAPID SOLUTION OF SERIOUS PROBLEMS. IN FY 1988, WHEN THE FEDERAL GRANTS AGAINST WHICH THESE STATE GRANTS ARE NOW MATCHED START DECLINING, THE STATE GRANT PROGRAM WOULD BE PARTIALLY UNCOUPLED FROM THE FEDERAL GRANT PROGRAM AND FROM THE RELATED FEDERAL REGULATIONS AND PROCEDURES. IN FY 1990, WHEN FEDERAL GRANTS WILL SUNSET, THE STATE GRANT PROGRAM WOULD BE COMPLETELY UNCOUPLED AND WILL BE COMPLETELY RESPONSIVE TO STATE PRIORITIES AND CAN BE ADMINISTERED WITH SIMPLIFIED PROCEDURES.

LOCAL GOVERNMENTS NOW PROVIDE 12.5 PERCENT OF THE COSTS OF SEWERAGE

FACILITIES WHICH RECEIVE FEDERAL GRANTS; THE FEDERAL GOVERNMENT PAYS 55

PERCENT, AND THE STATE: 32.5 PERCENT. WHEN THE FEDERAL GRANTS SUNSET, THE

LOCAL AND STATE SHARES MIGHT EACH BE INCREASED SO THAT THE LOCAL SHARE

WOULD BE ABOUT 25 PERCENT AND THE STATE SHARE ABOUT 75 PERCENT.

2. NO-INTEREST LOAN PROGRAM: THE FEDERAL CLEAN WATER ACT PERMITS NO-INTEREST LOANS BY THE STATE OF FEDERAL FUNDS. THESE OFFER THE NEXT HIGHEST LEVEL OF INCENTIVE AND SHOULD BE USED FOR THE NEXT HIGHEST LEVEL OF PRIORITY

PROJECTS. WE NOTE THAT FEDERAL REGULATIONS HAVE NOT YET BEEN WRITTEN FOR
THIS LOAN PROGRAM AND THEREFORE WE DO NOT KNOW THE EXTENT TO WHICH THIS
LOAN PROGRAM CAN ADDRESS STATE PRIORITIES OR BE IMPLEMENTED THROUGH
SIMPLIFIED PROCEDURES. WE EXPECT THAT FEDERAL PROCEDURES WILL APPLY AT
LEAST UNTIL THE FEDERAL GRANT FUNDS ARE REPAID BY "REVOLVING" LOCAL FUNDS.

3. BELOW-MARKET RATE LOANS: THE CLEAN WATER ACT ALSO PERMITS BELOW-MARKET
RATE LOANS OF FEDERAL FUNDS BY THE STATE. THESE OFFER THE LEAST INCENTIVE
AND WOULD BE USED FOR PROJECTS NOT MEETING THE ABOVE PRIORITY.
REQUIREMENTS. LIKE THE NO-INTEREST PROGRAM ABOVE, THIS PROGRAM MAY BE
SUBJECT TO FEDERAL ADMINISTRATIVE PROCEDURES.

PROJECTED FUNDING OF BOTH GRANT AND LOAN PROGRAMS IS SHOWN ON TABLE 1, FOLLOWING.

AS PART OF THIS LONG-RANGE FINANCIAL PLAN, THE STATE PRIORITY LIST SHOULD BE COMPLETELY REVISED IN RESPONSE TO THE FACT THAT IT CAN BE DE-COUPLED FROM FEDERAL GRANTS IN PART AND FOCUSSED ON STATE PRIORITIES BEGINNING IN FY 1989. WE SUGGEST THAT AT LEAST THE PART OF THE LIST NOT CONSTRAINED BY FEDERAL REQUIREMENTS PROVIDE FOR FUNDING FACILITIES TO DEAL WITH THE FOLLOWING:

- O DISCHARGE OF RAW SEWAGE OR OTHER POLLUTANTS INTO WATER BODIES;
- O UPGRADING OF SEWERAGE TREATMENT TO MEET NPDES PERMIT REQUIREMENTS;
- O CONSTRUCTION OF SEWAGE FACILITIES TO CORRECT FAILING SEPTIC SYSTEMS ORF FAILING SMALL TREATMENT PLANTS;

FEDERAL AND STATE SEWAGE FACILITY CONSTRUCTION GRANT AND LOAN AUTHORIZATIONS

		Maryland	(7)			1	1	\$ 5.9 (estimated)	5.9	11.7 "	± & &	5.9	5.9 "
REVOLVING LOAN FUNDS	Federal	Maryland Share (millions)	(9)	1		1	1	\$29.4	29.4	58.7	44.0	29.4	14.7
REVOLVING	Fe	Total (billions)	(5)		1	4	1	\$1.2	1.2	2.4	1.8	1.2	9.0
		Maryland (millions)	(4)	\$11.2	9.4,	20.4	40.0 (estimated)	34.1 "	34.1 "	. 28.3	31.2 "	34.1 "	34.1 "
GRANTS	Federal	Maryland Share (millions)	(3)	\$59.2	59.2	58.7	58.7	29.4	29.4	1		•	
	Fe	Total (billions)	(2)	\$2.4,	2.47	2.4	2.4	1.2	1.2	•		•	1
		Fiscal Year	(1)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994

1To date only. \$1.8 billion has been appropriated.

2To date only \$1.2 billion has been appropriated.

3preliminary - from "Second Reader" bill. This includes \$10 million earmarked for nitrogen removal at sewage treatment plants in the Patuxent River Basin, which probably cannot be matched against Federal grnats.

total project cost and state grants are 32.5 percent of total cost. Because of processing lag for federal grants to local jurisdictions the state grant authorizations through FY 1987 had not risen to the amount to match the federal allocation provided for under state law. This table assumes that this lag will "catch up" in FY 1988 and that this facility construction grants not exceed 87.5 percent of the total project cost. Federal grants are 55 percent of <sup>4</sup>The Annotated Code of Maryland, Section 9-347(b), provided that the combined state and federal share of sewerage level of authorization will continue through FY 1994. Maryland funds necessary to match 20 percent of federal revolving loans are deducted from the \$40 million estimated annual authorization and are shown in Column 7.

percent of federal contributions. This table assumes that Maryland authorizations will be 20 percent of federal <sup>5</sup>The 1987 Federal Clean Water Act Amendments provide for state contributions to revolving loan funds to be 20

- o PREVENTION OF SIGNIFICANT DETERIORATION OF WATER RESOURCES. IN
  PARTICULAR, THIS WOULD INQUIDE THE FOLLOWING:
  - . REPLACEMENT OF TREATMENT FACILITIES LIKELY TO FAIL BASED ON STUDY OF CONDITION AND AGE VERSUS DESIGN LIFE;
  - . INSTALLATION OF "FAIL-SAFE" SEWAGE PUMPING STATION FACILITIES OR REPLACEMENT OF FACILITIES LIKELY TO FAIL;
- O REPAIR AND REHABILITATION OF SEWERS;
- O CORRECTION OF INFILTRATION AND INFLOW INTO SEWERS;
- O LOW INTEREST LOANS FROM THE STATE DIRECTLY TO HOMEOWNERS TO REPLACE OR REHABILITATE FAILING SEPTIC SYSTEMS;
- O PILOT STUDIES OF NITROGEN REMOVAL FACILITIES, INCLUDING NECESSARY

  REPLACEMENT OF EXPERIMENTAL FACILITIES WHICH DO NOT WORK AS EXPECTED.

IN REGARD TO NITROGEN REMOVAL, WE NOTE THAT THE COSTS OF SEWAGE TREATMENT WILL GO MUCH HIGHER IF SUCH TREATMENT IS REQUIRED. WE NEED TO KNOW A LOT MORE ABOUT COSTS AND BENEFITS AND BEST WAYS OF REMOVING NITROGEN. PILOT PROGRAMS WOULD HELP.

IN THE PRIORITY LIST ANY NECESSARY COMPONENT OF A SEWERAGE FACILITY SHOULD RECEIVE THE SAME PRIORITY AS THE ENTIRE FACILITY. SLUDGE DISPOSAL, FOR EXAMPLE, IS JUST AS NECESSARY AS ADEQUATE TREATMENT.

THE PROJECT PRIORITY RANKING SYSTEM SHOULD PROVIDE AS MUCH INCENTIVE FOR KEEPING SEWERAGE FACILITIES IN GOOD CONDITION AS FOR SOLVING PROBLEMS AFTER THEY OCCUR: BOTH ARE EQUALLY NECESSARY TO PROTECT WATER QUALITY.

WE SUGGEST THAT THE FUNDING OF INNOVATIVE AND ALTERNATIVE PROJECTS, WHICH IS NOW DONE ON A PREFERENTIAL GRANT BASIS, BE DISCONTINUED. THIS PROGRAM HAS SERVED ITS PURPOSE BY ENCOURAGING INNOVATION. THE INNOVATIVE METHODS SHOULD NOW COMPETE AGAINST CONVENTIONAL METHODS ON A COST-EFFECTIVENESS BASIS IN THE PROJECT DESIGN STAGE. WE ARE AFRAID THAT THE "INNOVATIVE AND ALTERNATIVE" PROGRAM, WHICH NOW RECEIVES 75 PERCENT FEDERAL MATCHING GRANTS RATHER THAN THE 55 PERCENT EARMARKED FOR CONVENTIONAL FACILITIES, MAY BE USED FOR THE FUNDING OF DUBIOUS "INNOVATIONS" BECAUSE OF PREFERENTIAL FINANCING. MNAY OF THESE MAY HAVE VERY HIGH OPERATING AND MAINTENANCE COSTS WHICH MAY HAVE TO BE ASSUMED BY LOCAL GOVERNMENT.

### II. ADMINISTRATIVE SIMPLIFICATION

AS WE BEGIN TO DE-COUPLE MARYLAND SEWERAGE FACILITY FINANCING FROM FEDERAL FINANCING AND THE RELATED FEDERAL REQUIREMENTS, WE HAVE UNIQUE OPPORTUNITY TO SIMPLIFY AND EXPEDITE THE FINANCING PROCESS AND TO LOWER COSTS. UNDER FEDERAL FINANCING TYPICAL SEWERAGE TREATMENT FACILITIES HAVE TAKEN SEVEN YEARS FROM START OF PLANNING TO START OF CONSTRUCTION; SOME HAVE TAKEN LONGER. BECAUSE THE PROJECTS WE ARE TALKING ABOUT ARE BACKLOG ONES DEALING WITH CORRECTING OR AVOIDING SERIOUS WATER QUALITY PROBLEMS, THE PROBLEMS NEED TO BE SOLVED AS QUICKLY AS POSSIBLE.

A GOOD EXAMPLE OF SIMPLE REGULATIONS AND PROCEDURES ARE THOSE FORMERLY USED UNDER THE MARYLAND WATER QUALITY LOAN ACT OF 1973 (THE REGULATIONS ARE IN COMAR 10.03.47, MARYLAND REGISTER, VOL. 1, NO. 1, POPULARLY KNOWN AS THE "FAILING SEPTICS" PROGRAM). THIS PROGRAM PRODUCED GOOD RESULTS QUICKLY WITH MINIMUM RED TAPE. IT USED TO BE POSSIBLE TO COMPLETE THE APPLICATION PROCESS IN SIX MONTHS UNDER THIS PROGRAM. IT OFFERS A GOOD MODEL OF LEGISLATION,

REGULATIONS AND PROCEDURES FOR THE NEW LONG-RANGE FINANCIAL PROGRAM WHICH WE ARE RECOMMENDING TODAY.

IN CONCLUSION, WE ARE PLEASED THAT THE COMMITTEE IS UNDERTAKING THIS IMPORTANT TASK. WE HOPE THE COMMITTEE WILL BE GIVEN ADEQUATE TIME TO DO THE JOB AND WE WILL BE GLAD TO ASSIST IN ANY WAY WE CAN. WE WILL BE GLAD TO ANSWER ANY QUESTIONS.

COMMISSIONERS

Robert P. Will Chairman

Ada Koonce Blumenschein Vice Chairman

Henry T. Arrington Gilbert B. Lessenco Jesse L. Maury Robert M. Potter

Richard G. Hocevar General Manager



### WASHINGTON SUBURBAN SANITARY COMMISSION

4017 Hamilton Street • Hyattsville, MD 20781 • 301 699-4000

10 Xand 212 haly

July 31, 1987

Mr. Richard B. Sellars, Jr., Director Water Management Administration Department of the Environment 201 West Preston Street Baltimore, MD 21201

Dear Mr. Sellars:

I would like to thank you for the opportunity to discuss the WSSC's current sewage operations and needs with the Committee on Anticipated Sewage Treatment Needs. During the discussion, several questions were asked which required additional data. I have had my staff prepare the responses to these questions.

Enclosed are project description forms for the three Blue Plains projects with a summary discussing the purpose for each project. Also included is a copy of a report on the "Impact of the Phosphate Ban on WSSC Plants". The data in this report was recently presented at the Water and Wastewater Operators Association Meeting in Ocean City. The third enclosure addresses the potential use of privatization in the wastewater system. The significant portion of this discussion is that the Commission must retain control of its wastewater system in order to provide adequate wastewater services to Montgomery and Prince George's Counties.

If you should have any additional questions, don't hesitate to call.

Sincerely,

Richard G. Hocevar General Manager

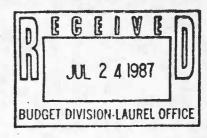
Enclosures

RECEIVED

AUG 5 1987

WATER MANAGEMENT ADMINISTRATION





TO:

DOMINIC M. TIBURZI, ACTING DIVISION HEAD

PLANNING AND ENGINEERING DIVISION

FILE NO.

FROM:

THOMAS J. DUBNICKA, PLANNING MANAGER

WATER RESOURCES PLANNING SECTION, EXT. 4070

DATE:

JULY 23, 1987

SUBJECT: POTENTIAL USE OF PRIVATIZATION IN THE WSSC'S WASTEWATER SYSTEM

In conjunction with the State of Maryland's Committee on Anticipated Sewage Treatment Needs, the WSSC has been asked to provide information on the potential effectiveness of the privatization of sewerage system components. The sewerage system is comprised of three major subsystems: collection systems, treatment systems, and disposal systems.

The collection system can be separated into the following major components: pipes, manholes, and pumping stations. The only component of collection system which appears to have potential for effective privatization is the pumping station component. A private entity could own the site and the shell building and lease it to the WSSC, who would then supply the necessary equipment. Furthermore, it may be possible for the equipment to also be privately owned, with WSSC leasing and operating it.

The treatment system is composed of the treatment plant and its various components. There are numerous possibilities for privatization in this system. Entire treatment plants could be owned by private entities and operated by the WSSC under a lease agreement. Additionally, specific components of a WSSC treatment plant could be privately owned. This is especially viable in situations where treatment plants are being upgraded or enlarged, and new or improved components are necessary. For instance, a plant's laboratory and its equipment could be privately owned and then leased and operated by the WSSC. Additionally, entire buildings, such as E/M buildings, could be privately owned and then leased by WSSC.

Disposal systems deal mostly with the disposal of sludge from the treatment process. This is an area where privatization would likely be effective. The sludge facility, whether it is a composting facility or other handling facility, could be privately owned and then leased by WSSC. Additionally, the entire sludge disposal process itself could possibly be privatized, with WSSC selling or somehow otherwise transferring the sludge to a privately owned and operated facility for processing and disposal.

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MPA (000's)			325 325			DATE (000's		À	<u></u>								et.		1992	(month-year)	
E. ANNUAL OPERATING BUDGET IMPA	Program Costs: Staff		Total Costs: Debt Service		Impact on water or sewer hate	F. APPROVAL AND EXPENDITURE DATE (000'S)		Contract of the second second second	Oate First Approved	Cost Estimate Last FY ( )	Approved Request, Last FY	Total Expenditures & Encumbrances	Approval Request FY 89	Supplemental Approval Request, Current Year ( FY 88 )		G. STATUS INFORMATION	Land Status: Not Applicable	% Project Completion: C-82%	Est. Completion Date: June, 19		
T	Progr		Total	<u> </u>	Impac	F. AF		7	o age	Cost	¥ ad	Total	Appr	Supp		יא פי	Land	% Pro	Est. C	T	
E REG. ADEQ. PUB. FAC.							(18) Beyond	8 Years													
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October 1 1987	1007 11 12		4	o offered	6. Planning Area	,	(14) Year 3	FY 91	513			3472		3985		2989	4 98	471			27
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	2. Date	REVISED				EXPENDITURE SCHEDULE (	(12) Year 1	FY 89	1184			12024		13208	FUNDING SCHEDULE ( 000'S	9066	1651	1560			91
	Code	nge				XPENDITUR	(11) Total	6 Years	3217		3.	25916		29133	FUNDING S	21850	3642	3442			199
NOI	Update Code	Change	30.9 MCD			m	(10) Estimate	FY 88	3360			8712		12072		9054	1509	1426	) )//		83
CODING INFORMATION	Ç.	00	In Platna WWTP at 309 MGD		no		(9) Thru	FY 87	13218			160000	,	173218		84126	14022	70949			4121
CODING	Agency No.	s-22.00	Platna		Sanitation		(8)	Total	19795			194628		214423		115030	19173	75817			4403
A. IDENTIFICATION	1. Project Number	584860		3. Project Name	4. Program	9.		Cost Elements	Planning, Design 1. and Supervision	2. Land	Site Improvements 3. and Utilities	4. Construction	5. Other	6. Total	Ċ	34 Federal Aid	05 State Aid	07 WSSC Bonds	Developer Contribution	Ad Valorem Tax	Rockville

1 1 1 1 4

## Blue Plains WWTP at 309 MGD - PROJECT NAME -584860 PROJECT NO. \_ D. DESCRIPTION & JUSTIFICATION

H. MAP Map Reference Code:

- (sludge management) and Disinfection. Service Area: Portions of Montgomery County and Prince George's County. This project covers WSSC's share of the expansion of the Blue Plains Mastewater treatment, solids processing, excavation, secondary treatment; nitrification and disinfection. Feasibility (treatment), Co-Disposal Treatment Plant to 309 mgd. The project also covers six construction subprojects: The project also includes funding for three studies: DESCRIPTION:
  - JUSTIFICATION: Plans and Studies: M-NCP&PC population projections (Round 3); General Plan; Memorandum of Understanding (1970); Blue Plains Agreement (1974); Memorandum of Understanding (1984); Development Plan for the Water Pollution Control Plant (Metcalf and Eddy, 1969); (Greeley and Hansen, July 1986). Specific Data: This is a continuation of the District (Camp, Dresser and McKee, 1984); Disinfection Study (James M. Montgomery, Development of Columbia's Blue Plains Wastewater Treatment. Plant upgrading program to treat an annual 1984); The Blue Plains Intermunicipal Agreement of 1985; and the Blue Plains Design average sewage flow of 309 mgd. Cost Increase: Not applicable. Co-Disposal Study Report
    - Under Construction. STATUS:
- The project scope has remained the same. The funding schedule breakdown reflects approved Federal and State grants and grants which have been applied for and not yet approved. As these facilities address water quality requirements and not growth, Maryland should approve they are fully grant fundable. Maryland, however, has informed WSSC that only 309 full grant support. The disinfection facilities have been designed for 370 mgd flow. mgd of the facilities plus five years of growth are grant fundable. agreed OTHER:
  - COORDINATION: The District of Columbia is responsible for construction. S.

## ORAFT

I. RELOCATION INFORMATION

	Program Costs: Staff	Other		Impact on Water or Sewer Rate	F. APPROVAL AND EXPENDITURE DATE	(18) Beyond	6 Years Date First in Capital Program	Date First Approved	Cost Estimate Last FY ( )	Approved Request, Last FY	Total Expenditures & Encumbrances	Approval Request FY 89	Supplemental Approval Request, Current Year ( FY 88 )	MOLENIA CHEETO C	G. STATUS INFORMATION		Land Status: Not Au	Land Status: Not App11cab	% Project Completion: D-12	% Project Completion: D-1% Est. Completion Date: June, 1	Land Status: Not Applicab % Project Completion: D-1% Est. Completion Date: June,
						(17) Year 6	FY 94	138			2795		2933		2200	4400	367	367	346	367	346
			SC	-County		(16) Year 5	FY 93	170			8193		8363		6272		1045	1045	1045	1045	1045
			WSSC	6. Planning Area B1-County		(15) Year 4	FY 92	795			19307		20102		15077	1001	2513	2513	2513	2513	2513
er 1. 1987			5. Agency	6. Plannir	-	(14) Year 3	FY 91	1325			22860		24185	100	18139	1	3023	3023	3023	3023	3023
October		D:			E SCHEDULE ( 000's	(13) Year 2	FY 90	863			9128		1666	( S.000 )	2672	17,7	1249	1249	1249	1180	1249
	2. Date	REVISED			RE SCHED	(12) Year 1	FY 89	3395			3363		6758	FUNDING SCHEDULE ( 000'S	5069	1	845	845	845	845	845
	Update Code	nge	agement		EXPENDITUR	(11) Total	6 Years	9899			97959		72332	FUNDING	54.250	27475	9042	9042	9042	9042	9042
LION	Updat	Change	Sludge Management			(10) Estimate	FY 88	1923			8767		6871		5153	242	859	859	859	812	859
CODING INFORMATION	No.	04		ou		(9) Thru	FY 87	42			300		342		265	40.4	43	43	43	43	43
NIGO	Agency No.	S-22.04	Blue Plains WWTP:	Sanitation		(8)	Total	8651			70894		79545		07703	23000	9944	9944	9944	9944	9944
<b>IDENTIFICATION A</b>	. Project Number	864833	Project Name Bluc	Proorem			Cost Elements	Planning, Design and Supervision	Land	Site Improvements and Utilities	. Construction	. Other	. Total		Endoral Aid	Lecelar Aic	State Aid	State Aid	State Aid WSSC Bonds	State Aid WSSC Bonds	State Aid WSSC Bonds veloper Contribution I Valorem Tax

D. DESCRIPTION & JUSTIFICATION

PROJECT NAME Blue Plains WVTP: Sludge Management PROJECT NO. 864833

This project includes funding for WSSC's share of the sludge management portion disposal facilities will be selected (EIS) has been prepared by the U.S. Environmental of the Blue Plains Wastewater Treatment Plant, excluding the Montgomery County Composting Facility (MCCF). The project includes funding for filter press dewatering, incineration and mechanical composting at Blue Plains. Specific sludge disposal facilities will be selected Protection Agency. Service Area: Portions of Montgomery and Prince George's Counties. Environmental Impact Statement DESCRIPTION:

JUSTIFICATION: Plans and Studies: M-NCP&PC population projections (Round 3); General Plan; Memorandum of Understanding (1970); Blue Plains Agreement (1974); Memorandum of Understanding (1984); Co-Disposal Study (Camp, Dresser & McKee, 1984); The Blue Plains Intermunicipal Agreement of 1985; and the Blue Plains Design Development Report (Greeley and Hansen, July 1986). Specific Data: This project is needed to implement a set of facilities which, in conjunction with the Montgomery County Compost Facility, will provide a permanent sludge Cost Increase: Not applicable. management program for Blue Plains sludge.

STATUS: Design.

construction grant. This project has been designated by EPA as "phase/segmented" which entitles it to a 20 year planning period. Funding is currently limited to the first segment and that includes degritting facilities, four additional gravity thickeners, rehabilitation of 12 anerobic digesters and three centrifuges. The projects in this initial segment do not Subsequent segments for the "when project and include dewatering facilities, mechanical composting reactors and incinerators. COORDINATION: The District of Columbia is responsible for construction. approved" Blue Plains WWTP 20 year planned capacity are considered within the scope of The project scope has remained the same. WSSC has been awarded a Step exceed the sludge handling capacity needed for 309 mgd.

95 THE POPPING BUDGET INFACT | E. ANNUAL OPERATING BUDGET IMPACT 900'S

(\$,000

H. MAP Map Reference Cods:

ORAFT

1. RELOCATION INFORMATION

							1	7 PRE. POF PG NO.	B REG ADEC	B REG ADEG PUB FAC	F ANNIAL OPERATING BUDGET IMPAGE (00015)	ACE (OOU'S)	FY Of
	CODING INFORMATION	- 1				October 1, 1987	1					15 000	Impact
	Agency No.	Upda	Update Code	2. Dete							Program Costs: Statt		*
	s-22.05	Cha	Change	REVISED:	ä								
0	Blue Plaine WWTP:	Water Quality end Reserve Capacity	ity end R	eserve Ca	pacity	5. Agency		WSSC			Total Costs: Maintenance Debt Service Total Costs:	1374	93
0	Sanitetion					6. Plannin	6. Planning AreaB1-County	1-County			Impact on Water or Sewer Rate	36	93
П			EXPENDITURE SCHEDULE ( 000's	RE SCHED	ULE ( 000's						F. APPROVAL AND EXPENDITURE DATE (000'S)	ATE (000's)	
	(9) Thru	(10) Estimate	(11) Total	(12) Year 1	(13) Yeer 2	(14) Yeer 3	(15) Year 4	(16) Yeer 5	(17) Yeer 6	(18) Beyond			
Total	FY 87	FY 88	6 Years	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	6 Years		2	86
5077	29	2845	2203	703	1005	495					Date First Approved		86
											Cost Estimate Last FY ( )		46882
											Approved Request, Last FY		12100
45667	180	4573	40914	15246	8045	5176	12447				Total Expenditures & Encumbrences		209
											Approvel Request FY 89		15949
50744	209	7418	43117	15949	9050	1295	12447				Supplementel Approvel Request, Current Yeer ( FY 88 )		
			FUNDING	FUNDING SCHEDULE ( 000'S	( 8,000 )								
27953	110	4087	23756	8787	4986	3125	6858				G. STATUS INFORMATION		
4658	18	681	3959	1464	831	521	1143				Lend Status: Not Applicable		
17139	77	2505	14557	5385	3056	1914	4202				% Project Completion: D-12		
											June, 1		
												(month-yeer)	
766	4	145	845	313	177	111	244						

TION PROJECT NO 864834 PROJECT NAME Blue Plains WWIP: Water Quality	
D DESCRIPTION & JUSTIFICATION PROJE	

H. MAP Map Reference Code:

- DESCRIPTION: This project includes funding for WSSC's share of the Blue Plains Wastewater Treatment Plant for additional water quality problema and to provide reserve capacity, for a total plant capacity of 370 mgd. The project includes: improvements to the filter influent aystem improvements, additional effluent filters and additional secondary secondary treatment improvements, effluent aeration, additional secondary baains, blowere. Service Area: Portions of Montgomery end Prince George's Countlee. nitrification
- (Greeley and Hansen, July 1986). Specific Data: This project covers certain water quality needs and reserve capacity to support anticipated growth through 2010. Coat Increase: Not JUSTIFICATION: Plans end Studies: M-NCP&PC population projectione (Round 3); General Plan; Memorandum of Understanding (1970); Blue Plains Agreement (1974); Memorandum of Understanding The Blue Plains Intermunicipal Agreement of 1985; and the Blue Plaina Design Development Report (1984); Blue Plains Feasibility Study (Greeley and Hanaen, 1984); 208 Plan Supplement (1984); applicable.
  - STATUS: Deelgn.
- OTHER: The project ecope has remained the same. The funding schedule shows grant support based on WSSC's assessment of grant eligibility. Specific project eligibility and actual grant availability are under discussion with the State of Maryland.

  COORDINATION: The District of Columbia is responsible for construction.

THE STATE OF

I. RELOCATION INFORMATION

## S-22.00 BLUE PLAINS W.W.T.P. AT 309 MGD

Project S-22.00 covers WSSC's share of the expansion of the Blue Plains WWTP from 240 mgd capacity to 309 mgd. Facilities in this project include additional primary and secondary sedimentation tanks, nitrification basins, multi-media filters, additional chlorination, solids processing building and the central operations building. Work has been ongoing since 1970 and the treatment facilities are in service; the remaining tasks include the central maintenance facilities, a maintenance management system, flow metering and process control system. WSSC's share of the total project cost is about \$214 million; of this amount \$173 million has been spent thru FY 87 leaving \$41 million to be funded between FY 88 and FY 92.

## S-22.04 BLUE PLAINS W.W.T.P.: SLUDGE MANAGEMENT

Project S-22.04 includes those facilities at the WWTP needed to provide a permanent sludge management program for Blue Plains sludge for both the existing 309 mgd capacity and the expanded 370 mgd. Facilities in this Project include sludge degritting and grinding, additional gravity thickeners, centrifuge dewatering system, sludge loading and liming system, filter press building, mechanical composting and sludge incineration. Work has been underway for about a year on the Project; WSSC's share of the total cost is about \$80 million which will be funded between FY 88 and FY 94 less about \$300,000 spent to date.

## S-22.05 BLUE PLAINS W.W.T.P.: WATER QUALITY AND RESERVE CAPACITY

Project S-22.05 includes modifications to existing facilities and construction of new facilities to improve treatment processes and meet the N.P.D.E.S. permit requirements (water quality portion of the Project), and to provide the additional capacity required to treat 370 mgd (growth portion of the Project). Facilities in water quality part of the Project include improvements to (1) secondary treatment, (2) multi media filter system, and (3) chemical system, dual purpose sedimentation basins and dechlorination system; facilities needed for growth include additional effluent filters, an effluent aeration blower building and improvements to nitrification. Work has been underway for about a year on the Project; WSSC's share of the total cost is about \$51 million which will be funded between FY 88 and FY 92, less about \$200,000 spent to date.

## Washington Suburban Sanitary Commission

## INTEROFFICE MEMORANDUM

TO:

R. G. SOLTIS

WASTEWATER OPERATIONS DIVISION HEAD

FROM:

R. SHARPE

SENIOR PLANT SUPERINTENDENT, 428-3117

DATE:

JULY 15, 1987

SUBJECT:

IMPACT OF THE PHOSPHATE BAN ON WSSC PLANTS

The Joint Annual Meeting of the Water and Waste Operators Association and the Chesapeake Water Pollution Control Association was held in Ocean City, Maryland from Wednesday, June 24, through Friday, June 26, 1987. On Thursday morning, a Speak Out Forum was held on the impact of the phosphate ban. The speakers for the Speak Out Forum were Jerry Slattery, representing the City of Baltimore, Richard Sedlak, representing the Soap and Detergent Association, Russell Sharpe, representing the Washington Suburban Sanitary Commission, and Richard Sellars, representing the Maryland Office of Environmental Programs. The following is a summary of information from my presentation on WSSC plants:

The Washington Suburban Sanitary Commission (WSSC) owns and operates six wastewater treatment plants in Prince George's and Montgomery County, Maryland. The plants range in size from 0.75 mgd to 30 mgd. Maryland's phosphate ban went into effect on December 1, 1985, but WSSC plants noticed influent phosphorus concentrations dropping as early as October, 1985. evaluate the impact of the phosphate ban, the 12-month period before October 1985 was compared to the last 12 months. Unfortunately, other factors affecting phosphorus concentrations changed during the evaluation period, such as flow rates, inflow/infiltration and starting to add alum at two plants. In addition, WSSC plants are constantly trying to improve plant performance. In short, it is not possible to conclusively say that all of the changes which were noticed were only due to the phosphate ban. However, the data will show that following the phosphate ban, all plants had a significant reduction in influent phosphorus and that plants that do not have chemical addition for phosphorus removal also showed a significant drop in effluent phosphorus. Plants with chemical addition for phosphorus removal showed no significant change in the concentration of effluent phosphorus, but a major reduction in chemicals was observed; reductions in sludge production were also noted.

To study the impact of the phosphate ban, a twelve month period from October 1984 thru September 1985 was selected, before the ban, and the last twelve months from June 1986 thru May 1987 was selected, after the ban. WSSC plants were broken down into three categories. In the first category, Seneca and Piscataway used chemical addition for phosphorus removal throughout the evaluation period. In the second category, Damascus and Western Branch, had no chemical addition for phosphorus removal throughout the evaluation period. The last two plants, Horsepen and Parkway, did not fit neatly into either of the

R. G. SOLTIS
IMPACT OF PHOSPHATE BAN
ON WSSC PLANTS
JULY 15, 1987
PAGE 2

first two categories. Each category will be analyzed in more detail, in reverse order.

The Horsepen Branch WWTP began adding alum during the evaluation period to meet a new NPDES Permit limit of 1.0 mg/L, which became effective in January 1986. Horsepen Branch experienced a 3.5 mg/L drop in influent phosphorus concentration and a 4.2 mg/L drop in effluent phosphorus concentration, following the ban. Before the ban, Horsepen Branch was removing 4.6 mg/L of phosphorus and, after the ban, the plant was removing 5.3 mg/L of phosphorus. Alum dosage, after the ban, averaged 27 mg/L; current dosage is 15 mg/L. The Parkway WWTP used alum throughout the evaluation period to settle out water plant sludge from the Patuxent Water Filtration Plant. Alum dosages were increased to provide for phosphorus removal to meet a new NPDES Permit limit of 1.0 mg/L, which became effective on March 2, 1987. Influent phosphorus concentrations for Parkway dropped 1.7 mg/L and effluent concentrations dropped 2.1 mg/L, following the ban. Parkway was removing 3.8 mg/L of phosphorus before the ban and 4.2 mg/L of phosphorus following the ban. A recent increase in influent phosphorus concentration at Parkway appears to be a result of an industrial discharge on certain days, when very high phosphorus concentrations are observed. On most days, influent phosphorus concentrations are about the same that they have been recently. The Industrial Discharge Control Unit is investigating the high phosphorus concentrations entering the plant. In analyzing both phosphorus concentrations and loadings, Horsepen Branch and Parkway WWTPs have experienced a decrease in influent phosphorus of 23% to 37% and effluent phosphorus has decreased 61% to 87%. The drop in effluent phosphorus concentration at these two plants is attributed to a combination of the phosphate ban and starting-up/changing alum addition.

The Damascus and Western Branch WWTPs had no chemical addition for phosphorus removal throughout the evaluation period. Influent phosphorus concentrations at Damascus dropped 4.8 mg/L, while effluent phosphorus concentrations dropped 4.9 mg/L, following the ban. Before the ban, Damascus was removing 3.0 mg/L of phosphorus and after the ban, 3.1 mg/L of phosphorus was removed. Western Branch experienced a 3.0 mg/L drop in influent phosphorus and a 2.4 mg/L drop in effluent phosphorus, after the ban. Before the ban, the plant was removing 4.7 mg/L of phosphorus and, after the ban, the plant was removing 4.1 mg/L of phosphorus. For the past several months, Western Branch has been able to meet a new NPDES Permit limit for phosphorus of 1.0 mg/L (which went into effect on March 2, 1987) without chemical addition. In analyzing both phosphorus concentrations and loadings, Damascus and Western Branch experienced a 15% to 40% drop in influent phosphorus and a 33% to 72% reduction in effluent phosphorus. For every mg/L drop in influent, almost a 1 mg/L drop in effluent was observed. For every 1% drop in influent phosphorus, there was almost a 2% drop in effluent phosphorus.

The Seneca and Piscataway WWTPs used chemical addition for phosphorus removal throughout the evaluation period. Seneca uses Sodium Aluminate for phosphorus removal to meet an NPDES Permit limit of 2 mg/L. Seneca experienced approximately a 1.9 mg/L drop in influent phosphorus concentration, while effluent phosphorus concentration remained virtually the same. Before the ban, the plant was removing 5.7 mg/L of phosphorus; after the ban, only 3.8 mg/L of

R. G. SOLTIS
IMPACT OF PHOSPHATE BAN
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JULY 15, 1987
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Based on recent results which have been obtained phosphorus was removed. without Sodium Aluminate addition, the Seneca WWTP appears to be experiencing about a 3 mg/L drop in phosphorus concentrations due to background removal. This would mean that before the ban, about 2.7 mg/L of phosphorus had to be removed chemically and, after the ban, only 0.8 mg/L of phosphorus had to be removed chemically. This explains why Seneca has reduced sodium aluminate usage by 67% following the ban. At Piscataway, alum is used for phosphorus removal to meet an NPDES Permit limit of 0.2 mg/L. Piscataway experienced a drop of about 2.5 mg/L in the influent phosphorus concentration, following the ban; the effluent phosphorus remained virtually unchanged. Before the ban, Piscataway was removing 6.3 mg/L of phosphorus; after the ban, the plant was removing 3.9 mg/L of phosphorus. Background removal at Piscataway has been estimated at about 3 mg/L; this would mean that Piscataway was removing about 3.3 mg/L of phosphorus chemically, before the ban and about 0.9 mg/L of phosphorus, after the ban. This would explain the 64% reduction in alum from 99 mg/L before the ban to 36 mg/L after the ban; it is also interesting to note that Piscataway is currently down to 13 mg/L of alum. In analyzing phosphorus concentrations and loadings, the Seneca and Piscataway WWTPs experienced a 29% to 39% drop in influent phosphorus, after the ban. Effluent phosphorus remained about the same. Chemical addition dropped between 64% and 67% at the two plants. A sludge reduction was also noticed.

The six WSSC wastewater plants experienced an 11% increase in flow from the pre-ban to the post-ban period. Influent phosphorus concentrations dropped an average of 2.9 mg/L or 35%; influent phosphorus loadings dropped 591 pounds per day or 29%. Effluent phosphorus concentrations dropped an average of 2.3 mg/L or 61%; effluent phosphorus loadings dropped 310 pounds per day or 58%. Effluent phosphorus loadings at Damascus and Western Branch dropped 214 pounds per day or 66%, without any chemical addition for phosphorus removal. The Seneca and Piscataway WWTPs were the only plants using chemicals throughout the evaluation period for phosphorus removal and experienced a 64% to 67% reduction in chemical dosage. In comparing dry tons of sludge per million gallons of flow, the Seneca WWTP experienced a 4% drop in sludge production and the Piscataway WWTP experienced an 11% drop in sludge production. Many other factors affect sludge production and may be impacting these numbers. After a longer evaluation period, I anticipate that the Seneca percent sludge reduction will go up and the Piscataway percent sludge reduction will go down.

WSSC plants have experienced a 29% drop in the pounds per day of phosphorus entering the plants and a 58% reduction in the pounds per day of phosphorus discharged from the plants, following the phosphate ban. At the two plants removing phosphorus chemically throughout the evaluation period, the chemical usage dropped 64% to 67% and sludge production dropped 4% to 11%, following the phosphate ban. Although many other factors have influenced these results, the phosphate ban appears to have had a major impact on the performance of WSSC wastewater plants.

RS/rz

Attachments

cc: C. Sheetz, C. Dones, All Superintendents

## PHOSPHORUS BAN

## EVALUATION PERIODS

Pre-Ban October 1984 thru September 1985

Transition October 1985 thru May 1986

Post-Ban June 1986 thru May 1987

## HORSEPEN BRANCH WWTP

Design Flow 1 mgd

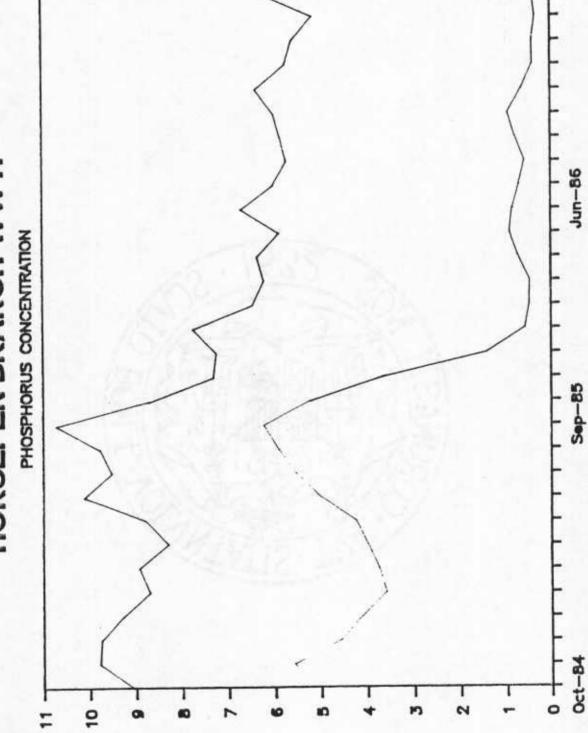
Current Flow (1986) 0.4 mgd

Treatment Extended Aeration & Gravity Filtration

Phosphorus Removal Alum (Starting 1/86)

NPDES Limit 1.0 mg/L (Effective 1/86)

# HORSEPEN BRANCH WWTP



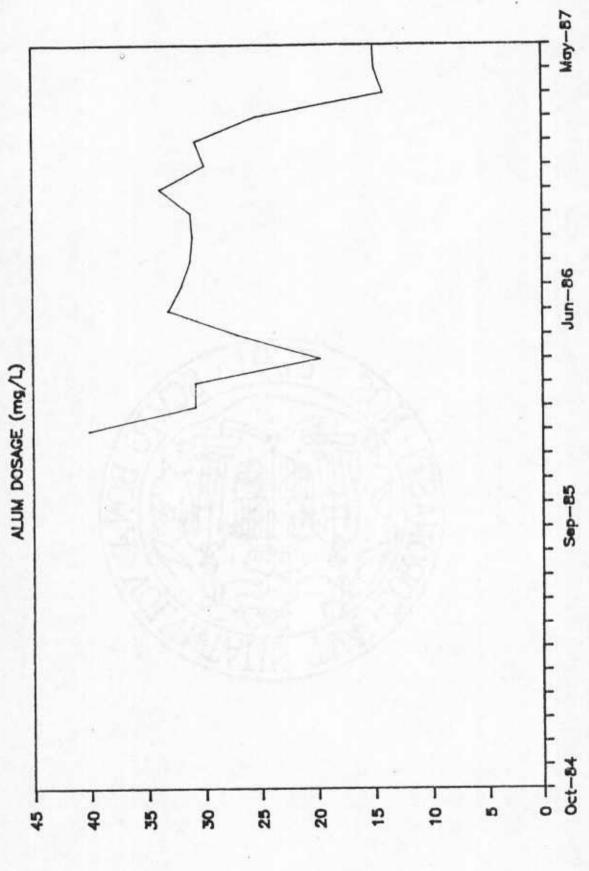
60

May-57

Bottom Line - Eff

Top Line - Inf

# HORSEPEN BRANCH WWTP



7/BW

HORSEPEN BRANCH WWTP

		Phosphorous	Phosphorous Concentration	Phosphor	Phosphorous Loading	
	Rffluent Flow (mgd)	Influent (mg/L)	<pre>Kffluent (mg/L)</pre>	Influent (1b/day)	Effluent (1b/day)	Alum (mg/L)
re-Ban	0.364	9.40	4.81	28	14	0
ost-Ban	+15%	-37%	-87 <b>Z</b>	-25 <b>x</b>	-867.	26.9

Design Flow 7.5 mgd

Current Flow (1986) 4.4 mgd

Treatment Primaries,

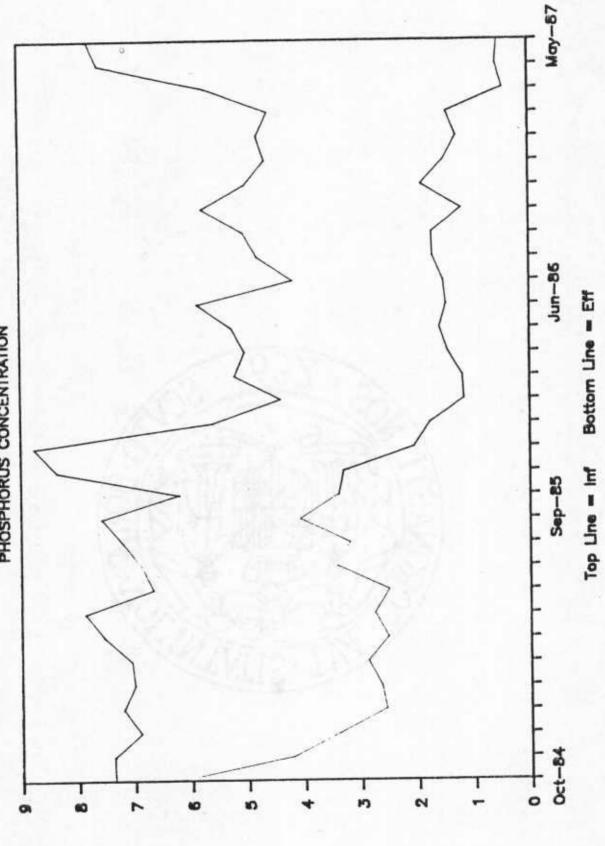
Primaries, Trickling Filters &

Nitrification

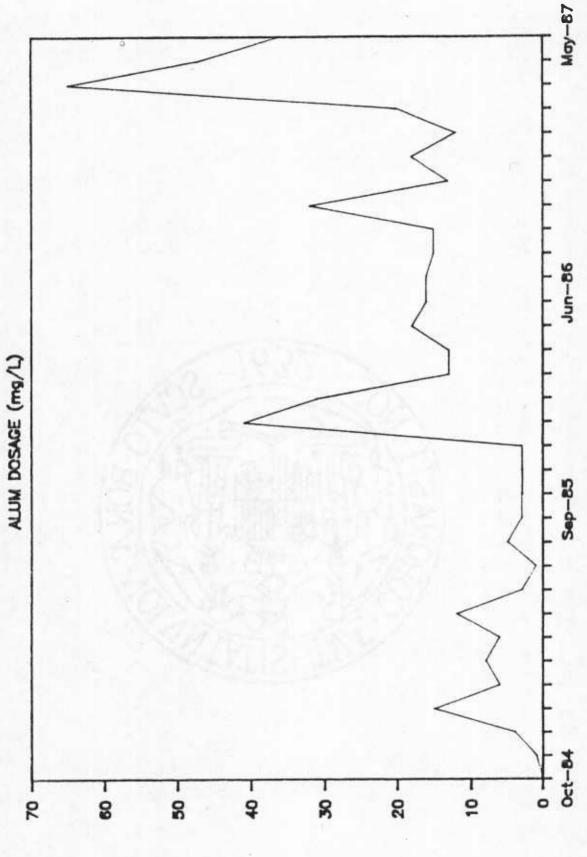
Phosphorus Removal Alum

NPDES Limit 1.0 mg/L (Effective 3/2/87)

PHOSPHORUS CONCENTRATION



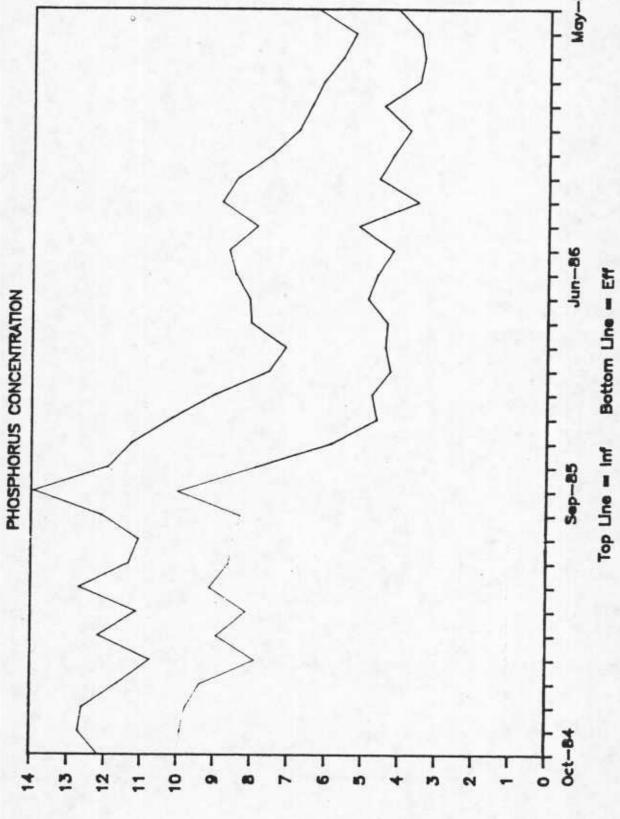
7/6w



7/8W

		Phosphorus (	Phosphorus Concentration	Phosph
	Effluent	Influent	Effluent	Influent
	Flow (mgd)	(mg/L)	(mg/L)	(1b/day)
Pre-Ban	4.503	7.22	3.37	271
	+1%	-24%	-62%	-2
Post-Ban	4.566	5.48	1.27	209

## DAMASCUS WWTP



7/6W

		Phosphorous	Phosphorous Concentration	Phosphor	Phosphorous Loading
	Effluent Flow (mgd)	Influent (mg/L)	Effluent (mg/L)	Influent (1b/day)	Effluent (1b/day)
re-Ban	0,398	12.04	9.05	07	30
ost - Ban	+46Z 0.183	-40 <b>Z</b>	-55%	-15 <b>Z</b>	-33 <b>X</b>

## WESTERN BRANCH WWTP

Design Flow 30 mgd

Current Flow (1986) 11.2 mgd

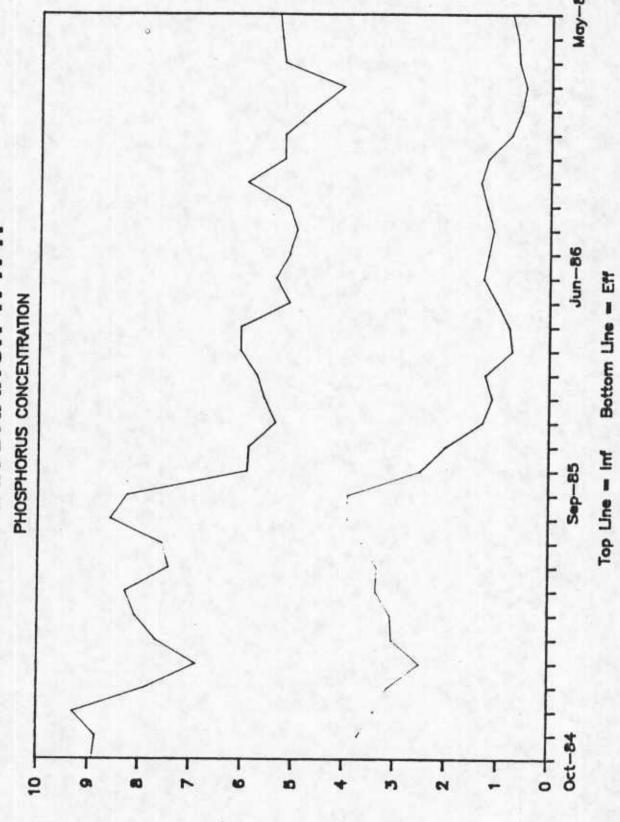
Treatment High Rate Activated Sludge, Nitrification &

Gravity Filtration

Phosphorus Removal N/A

NPDES Limit 1.0 mg/L (Effective 3/2/87)

# WESTERN BRANCH WWTP



7/84

		Phosphorus Concer	Concer
	Effluent	Influent	Ef
	(mgd)	(mg/L)	<u>"</u> )
Pre-Ban	10.502	8.15	3.3
	+10%	-37%	
Post-Ban	11.569	5.12	0.0

SENECA WWTP

		Phosphorus (	Phosphorus Concentration	Phosphorus Loading	Loading	
	Effluent Flow (mgd)	Influent (mg/L)	<pre>Kffluent (mg/L)</pre>	Influent (15/day)	Effluent (1b/day)	Sodium Aluminate (gal/day)
Pre-Ren	4.440	7.32	1.58	274	59	135
	X9-	-27X	XZ-	-32%	-81	X19-
Post-Ban	4.209	5.35	1.55	187	54	45

PISCATAWAY WWTP

Design Flow 30 mgd

Current Flow (1986) 13.5 mgd

Treatment Primaries,

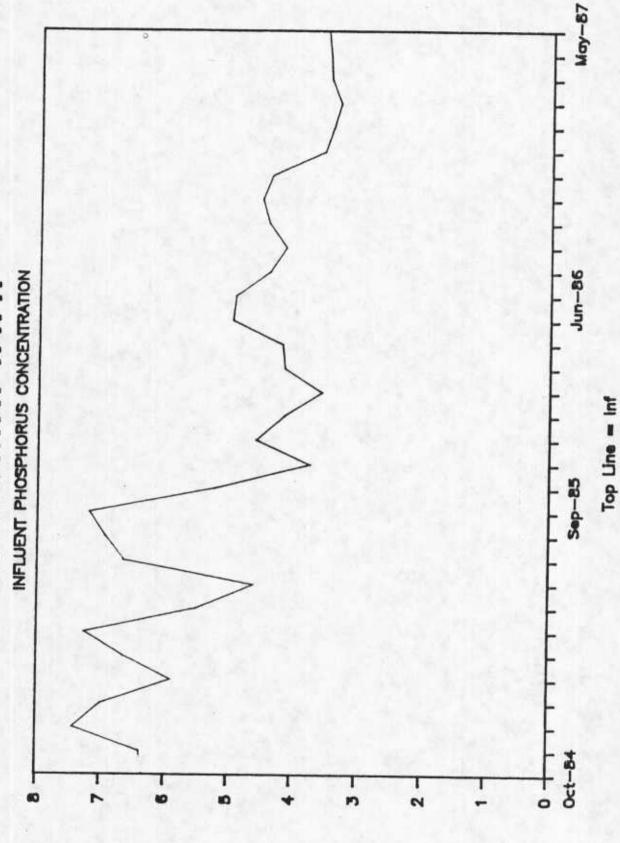
Conventional Activated Sludge,

Nitrification & Gravity Filtration

Phosphorus Removal Alum

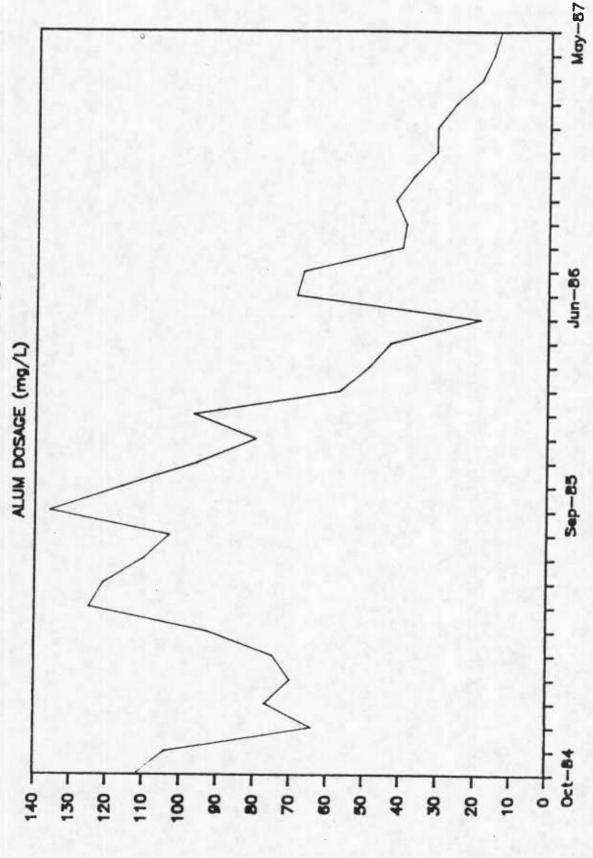
NPDES Limit 0.2 mg/L

## PISCATAWAY WWTP



7/BW

## PISCATAWAY WWTP



7/8W

PISCATAWAY WWTP

		Phosphorous	Phosphorous Concentration	Phosphor	Phosphorous Loading		
	Effluent Flow (mgd)	Influent (mg/L)	Effluent (mg/L)	Influent (1b/day)	Effluent (1b/day)	Alum (mg/L)	
Pre-Ban	13.351	67.9	0.149	722	17	66	
Post-Ban	+19%	3.96	-30 <b>x</b>	-29%	-18%	-64 <b>X</b>	

## SUMMARY

## EFFLUENT FLOW (mgd)

	Pre-Ban	Post-Ban	7 Chance
	ILE BAIL	TOSC Ball	Z Change
Horsepen Branch WWTP	0.364	0.417	+15%
Parkway WWTP	4.503	4.566	+17
Damascus WWTP	0.398	0.583	+46Z
Western Branch WWTP	10.502	11.569	+10%
Seneca WWTP	4.490	4.209	-6 <b>Z</b>
Piscataway WWTP	13.351	15.886	+197
Total	33.608	37.230	+112

SUMMARY

## INFLUENT PHOSPHORUS CONCENTRATION (mg/L)

	Pre-Ban	Post-Ban	Z Change
Horsepen Branch WWTP	9.40	5.94	-37 <b>Z</b>
Parkway WWTP	7.22	5.48	-247
Damascus WWTP	12.04	7.20	-40 <b>Z</b>
Western Branch WWTP	8.15	5.12	-37 <b>Z</b>
Seneca WWTP	7.32	5.35	-27 <b>Z</b>
Piscataway WWTP	6.49	3.96	-397
Average	8.44	5.51	-35%

SUMMARY

## INFLUENT PHOSPHORUS LOADING (1b/Day)

	Pre-Ban	Post-Ban	% Change
Horsepen Branch WWTP	28	21	-25 <b>Z</b>
Parkway WWTP	271	209	-237
Damascus WWTP	40	34	-15%
Western Branch WWTP	712	492	-31%
Seneca WWTP	274	187	-32%
Piscataway WWTP	722	<u>513</u>	-29%
Total	2047	145 <i>6</i>	-29%

## EFFLUENT PHOSPHORUS CONCENTRATION (mg/L)

O	Pre-Ban	Post-Ban	I Change
Horsepen Branch WWTP	4.81	0.63	-87%
Parkway WWTP	3.37	1.27	-62%
Damascus WWTP	9.05	4.10	-55%
Western Branch WWTP	3.38	0.96	-72%
Seneca WWTP	1.58	1.55	-2%
Piscataway WWTP	0.149	0.105	-30 <b>z</b>
Average	3.72	1.44	-612

## SUMMARY

## ALUM & SODIUM ALUMINATE DOSAGE PISCATAWAY & SENECA ONLY

	Pre-Ban	Post-Ban	Z Change
Seneca WWTP (Sodium Aluminate - gal/day)	135	45	-67%
Piscataway WWTP (Alum - mg/L)	99	36	-647

## SUMMARY

## SLUDGE (Dry Tons/mil gal) PISCATAWAY & SENECA ONLY

	Pre-Ban	Post-Ban	Z Change
Seneca WWTP	0.45	0.43	-4%
Piscataway WWTP	1.79	1.60	-117

## EXPANSION AND IMPACT FEES

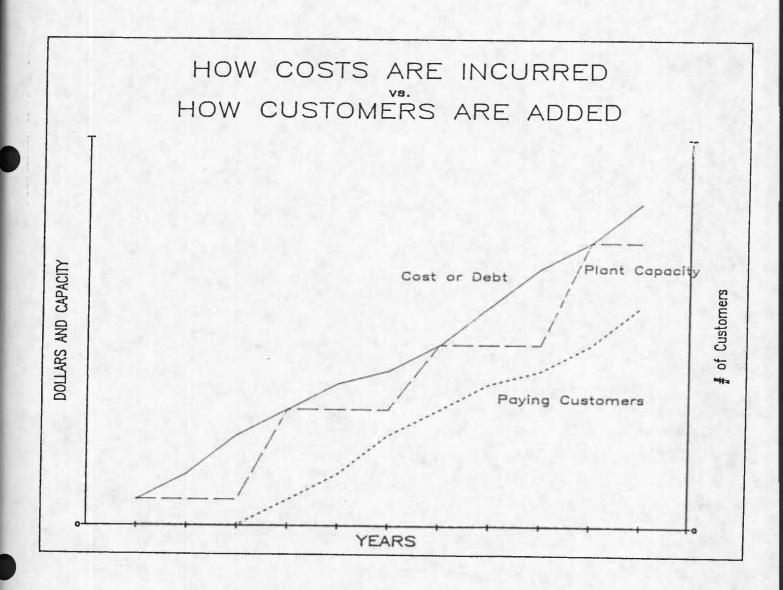
## JULY 16, 1987

## JOSEPH T. CARRIGAN, JR. WASHINGTON SUBURBAN SANITARY COMMISSION

- 1. Problem Definition:
  - 1.1 Technical Problems:
    - 1.1.1 Quantity: Insufficient plant capacity (transmission or treatment) to meet the needs of a growing community
    - 1.1.2 Quality: An inadequate process not meeting treatment standards
- 2. Solving the technical problems means addressing certain policy-type problems.
  - 2.1 Beneficiary Problems: Identifying who will benefit from the improvements to the system.
    - 2.1.1 The Quantity (growth) Problem: The direct beneficiaries are the new customers seeking a better place to live and the developer with a profit motive. Indirectly, the community as a whole may benefit if the growth is managed correctly.
    - 2.1.2 The Quality Problem: The existing customer is the immediate beneficiary from plant improvements which preserve the environment by meeting Federal and State standards.
  - 2.2 Cost Recovery Problem (Who pays?)
    - 2.2.1 Presumably, plant improvements with long-term benefits will be financed with long-term debt instruments.
    - 2.2.2 During the construction period, there are new debt service costs but no new customers; so the resulting debt cost must either be financed or paid by existing customers. In a growth situation, existing customers argue that they should not bear the cost of expansion.

- 2.2 Cost Recovery Problem (Who pays?) (Continued)
  - 2.2.3 When construction is completed, new customers are added gradually.
  - 2.2.4 In a growth situation the following relationship of growth versus capacity versus new customers exists:

(Continued)



3. How can the community raise the money?

3.1. Rate increases to existing customers

3.1.1 Very unpopular with the existing groups of customers (voters) who are already here, paying taxes and resent having to fund improvements for new customers.

3.2 Impact fees to new customers

- 3.2.1 Puts the cost of expansion on the beneficiary but it's unpopular with developers because it raises the price of housing.
- 3.2.2 Many communities are pursuing impact fees but they are also trying to balance this economic effect against the political and social effects impact fees may have on the community.

## WSSC HISTORY OF IMPACT FEES

1960's - 1970's - Sub-district charges: \$250.00

- . The Washington Suburban Sanitary Distirct is divided into sub-districts
- . Sub-districts arranged in proximity to plant
- . If development occurred in remote sub-district first, then a charge of \$250.00 per connection was levied to offset the cost of extending lines in advance of planned expansion.

1970's - Interim Sewer Service Charge: \$750.00

- Charge on all new connections to pay for emergency improvement to transmission and treatment facilities.
- 1970's Developer Financed Sewer Treatment Plants: \$3 million
  - A State imposed moratorium on new development, due to the absence of adequate treatment capacity, got developers involved in solving the problem by building and contributing approximately \$3 million in new sewage treatment plants.
- 1980's System Expansion Offset Charge: \$1,560.00
  - . The cost of growth prompted officials to request WSSC to develop a charge specifically for the cost of expansion.
  - . The Capital Improvement Program (CIP) was used as the basis for estimating future cost.
  - Each new house throughout the Sanitary District was charged \$1,560, payable by the developer at permit time. Commercial, office and industrial properties were charged on the basis of number of plumbing fixture units and paid substantially more than \$1,560 each.
  - . The program collected approximately \$40 million before it was terminated by a developer law suit claiming lack of statutory authority on the part of WSSC.

## Currently

. WSSC is paying for expansion costs through the Water/Sewer user charges but discussions are continuing with the Counties to obtain the statutory authority and reimpose an expansion charge. Current estimates indicate the charge would have to be \$2,980.00 per house.



GEORGE F. NEIMEYER
DIRECTOR
992-2400

Deaf TDD Number 992-2323



DEPARTMENT of PUBLIC WORKS of HOWARD COUNTY
3430 COURT HOUSE DRIVE, ELLICOTT CITY, MARYLAND 21043

June 17, 1987

Mr. Richard Sellars, Director Water Management Administration Dept. of Health & Mental Hygiene 201 W. Preston Street Baltimore, MD 21203

Dear Mr. Sellars:

Bureau of Engineering
William E Riley, Chief

Bureau of Environmental Services
James M Irvin, Chief

Bureau of Facilities
Fred F. Willers, Chief

Bureau of Highways
Granville W Wehland, Chief

Bureau of Inspections, Licenses, and Permits
M. Robert Gemmill, Chief

Bureau of Utilities
Robert M. Beringer, Chief

37 ET JUN 23 1987 JUL

Subject: Committee to Study Anticipated Sewage Treatment Needs

I would like to thank you for the opportunity to testify to your committee on Anticipated Sewage Treatment Needs in Annapolis on June 15, 1987. As indicated in my testimony, I would like to provide you with the cost of a water and sewage house connection in Howard County. These costs are:

#### Water Connection Charges

#### Sewer Connection Charges

3/4" Connection Water In-Aid-of-Construction Meter Setting	\$ 860.00 500.00 55.00	6" Connection Sewer In-Aid-of-Construction	\$1,100.00
TOTAL	\$1,415.00	TOTAL	\$1,600.00

If a developer provides the house connections by constructing the public lines himself, then the cost of connection would be reduced by \$860.00 for water and \$1,100.00 for sewer. Additionally, if a house is located in the Middle Patuxent Subdistrict Area, an additional \$500.00 supplemental in-aid-of-construction charge is required to be paid for a sewer house connection.

In order to recover the cost of construction of the lateral water and sewer lines, an annual front foot assessment is charged to each lot owner. For houses which connect this fiscal year, the front foot assessment charges are:

Water = \$1.10 per foot of lot width Sewer = \$1.57 per foot of lot width

During my testimony to the committee, I discussed how Howard County also uses ad valorem charges to cover the costs of construction of utility systems. Inadvertently I indicated that the rates were \$0.20 per \$1,000.00 of assessed valuation of property for the basic ad valorem charge and \$0.25 per \$1,000.00 of assessed valuation for the Middle Patuxent Subdistrict Supplemental Ad Valorem charge. These charges

Subject: Committee to Study Anticipated
Sewage Treatment Needs

are actually per \$100.00 of assessed valuation in the same manner as property tax rates.

I am also enclosing a chart which provides a summary of our utility system rates for your use. Should you have any questions on this matter, please do not hesitate to contact me at your convenience.

very truly yours

George F. Neimeyer

Director

GFN/Ile

Attachment

cc: James M. Irvin File

Water & Sewer House Connection Charges and Rate Schedule - Effective July 1, 1986

* 6" SEWER - \$1,100.00 * 8" SEWER - Cost, with a respective to the series of the serie	METER CHARGE  5/8" \$860.00 3/4" \$875.00 1" Cost/Min \$875. 2" Cost/Min \$875. 2" Cost/Min \$875. 6" Cost/Min \$875. 6" Cost/Min \$875. 6" Cost/Min \$875. 8" Cost/Min \$875. 10" Cost/Min \$875.	WATER AND SEWER** HOUSE CONNECTION
Protection Charges Quarterly \$ 62.1 \$ 93.1 \$ 125.0 \$ 156.2	100 CUBIC FT  10 20 20 30 40 80 140 300 450 600 750	QUARTERLY WATER SERVICE  MINIMUM AB  CONSIMPTION
te	CHARGES  \$ 6.40 12.80 19.20 25.60 51.20 89.60 192.00 288.00 384.00 480.00	MINIMUM
SPECIAL CHARGES Unmetered Water Servi Bad Check Handling Special Reading of Me Turning Water Off at Turning Water On at M Remove Meter - 5/8" o Restore Meter - 5/8" Water Meter Setting 5 Water Meter Setting 1 Water Meter Setting 1 Water Meter Setting 3 Water Meter Setting 3 Water Meter Setting 3 Late Charge (Bill Unp Sewer Service Only (N	\$0.64 0.64 0.64 0.64 0.64 0.64 0.64 0.64	ICE CHARGE ABOVE MINIMUM
Meter (10 day notice required) at Meter t Meter " or 3/4" Meter 8" or 3/4" Meter 1" or Larger Meter 19 5/8" 19 1" 19 1" 19 1" 19 2" 19 3" and larger Unpaid 30 Days After Due Date) Unpaid 30 Days After Due Date)	100 CUBIC FT  10 20 30 40 80 80 80 80 80 80	DNS.
ice required) er Due Date)	\$10.80 21.60 32.40 43.20 86.40 86.40 86.40 86.40 86.40 86.40	CH (
\$19.25/Quarter \$20.00 \$15.00 \$15.00 \$15.00 \$15.00 At Cost \$55.00 \$100.00 \$300.00 \$350.00 At Cost 10% of Bill \$32.50/Quarter	\$ 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08	CHARGE** ABOVE MINIMUM

<sup>\*</sup> RESOLUTION #68 - 1986 Legislative Session - One time in-aid-of-construction charge of \$500.00 per dwelling unit or equivalent, payable with permit application for water connection and \$500.00 payable with permit application for sewer connection.

<sup>\*</sup> RESOLUTION #69 - 1986 Legislative Session - Supplemental in-aid-of-construction (Middle Patuxent Sewer Interceptor) \$500.00 payable with permit application for sewer connection.

# METROPOLITAN DISTRICT CHARGES

Applicable for all property served by Water & Sewer contracts completed on or after July 1, 1986 through June 30, 1987.

## FRONT FOOT BENEFIT CHARGES

Resolution #67
1986 Legislative Session

### Residential

1st 150 feet 2nd 150 feet All over 300 feet

> Water (Per Foot) \$ 1.10 0.82 0.41

Sewer (Per Foot) \$ 1.57 1.18 0.59

Condominium Apartments (25' per unit - minimum)

Townhouses (25' minimum)

Irregular Lots (minimum footages apply - Contact Office of Finance, 992-2061). Small Lots (minimum footages apply - Contact Office of Finance, 992-2061).

#### Commercial

All frontage
Apartments (Rental)
Trailer Parks
Motels

\$ 1.37
25 feet per unit
25 feet per unit
12½ feet per unit

\$1.9

## AD VALOREM CHARGES

Resolution #70 1986 Legislative Session

and all other property assessed for County Tax purposes within the Metropolitan District. Twenty cents (.20¢) per each \$100.00 of Assessed Valuation upon all accessable property as to all Land and Improvements

# SUPPLEMENTAL AD VALOREM CHARGE ON PROPERTY WITHIN THE MIDDLE PATUXENT DRAINAGE SUBDISTRICT

Resolution #71 1986 Legislative Session

Subdistrict. Twenty five cents (.25¢) per each \$100.00 of assessed valuation of property located within the Middle Patuxent Drainage

during subsequent Legislative Sessions. All above rates, assessments, charges or taxes are subject to change with passage of new Council Bills and/or Resolutions

Nixon, Hargrave, Devans & Doyle 30 ROCKEFELLER PLAZA LINCOLN FIRST TOWER Attorneys and Counselors at Law NEW YORK, NEW YORK 10112 POST OFFICE BOX 1051 A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS (212) 586-4100 ROCHESTER, NEW YORK 14603 CABLE: NIXONHARG NEW YORK (716) 546-8000 ONE THOMAS CIRCLE TELEX: 66521 (MCI) CABLE: NIXONHARG ROCHESTER TELEX: 978450 (WUT) WASHINGTON, D. C. 20005 REYNOLOS PLAZA (202) 223-7200 1061 EAST INDIANTOWN ROAD SUITE 400, ONE STEUBEN PLACE TELEX: 5106008427 (WUT) JUPITER, FLORIDA 33477 POST OFFICE BOX 1847 (305) 746-1002 ALBANY, NEW YORK 12201 (305) 283-5004 (MARTIN COUNTY) (518) 434-6000 May 21, 1987 Richard B. Sellars, Jr. Director Water Management Administration Maryland Department of Health and Mental Hygiene Office of Environmental Programs 201 West Preston St. Baltimore, Maryland 21201 Dear Mr. Sellars: On behalf of Roger Feldman, Pendleton Rogers and myself, I want to thank you for affording us the opportunity to address the Committee to Study Anticipated Sewage Treatment Needs in Maryland. We appreciate your attention to the testimony and the interest expressed in privatization and the implementation of revolving funds during the question and answer session. As you requested, I have assembled some model legislation adopted by other states addressing, in various ways, a legislative framework suitable for privatization. These include: Alabama Code §§ 11-97-1 et. seq. Provides a detailed and comprehensive privatization statute which authorizes the formation of public corporations to act as the vehicles for privatization transactions. The statute empowers these public corporations to exercise eminent domain and enjoy exemption from competitive bidding and taxation, and supplies the necessary authority to issue tax-exempt bonds. Indiana Code §§ 36-9-24-1 et. seq. Authorizes municipalities to lease sewage treatment facilities from a private company for up to 50

Nixon, Hargrave, Devans & Doyle Mr. Richard B. Sellars, Jr. May 21, 1987 Page 2 years. The facilities are tax-exempt and these leases must contain a purchase option for the municipality. New Jersey Statutes §§ 58:27-1 et. seq. This recently enacted wastewater treatment privatization program provides a detailed framework authorizing and regulating long-term agreements between local governments and private companies for the operation, maintenance and management of sewage treatment services. Utah Code Ann. §§ 73-10d-1 et. seq. The Utah 0 Privatization Act details the authority of local governments when entering into contracts with private entities for the construction, operation, maintenance, and ownership of privatized wastewater projects. Washington Laws 1986 Ch. 244. Authorizes contracts between public bodies and the private sector to provide water pollution control facilities, sewage systems and operation and maintenance services. Currently over 25 states have some form of statutory authority governing public-private contracts for water supply and/or sewage treatment services. The five statutes summarized above and attached hereto are examples of the different approaches that have been adopted. Again, we are available to meet with you and other members of the Committee for a more detailed discussion of the legal issues surrounding the privatization of wastewater treatment and the implementation of State Revolving Funds under the Clean Water Act Amendments of 1987. Please do not hesitate to contact us if you have any questions or would like to arrange such a meeting. Sincerely, Howard Sharptin Howard Sharfsten Enclosures cc: Roger D. Feldman N. Pendleton Rogers

Remarks before the Committee

To Study Anticipated Sewage Treatment Needs

Regarding The Privatization Option

For Municipal Wastewater Treatment

Annapolis, Maryland May 12, 1987

by Roger D. Feldman, P.C.
Nixon, Hargrave, Devans & Doyle
Washington, D.C.

In order to address the potential for privatization in the wastewater treatment field, it is important to briefly define the term privatization, which has been used to describe a variety of initiatives that involve the private sector in areas that were traditionally viewed as the public sector's domain. The form of privatization we are here to discuss is not a delegation of public responsibility to the private sector, but a public/private partnership to better meet wastewater treatment needs. The economics of privatization have shifted with the Tax Reform Act of 1986, the effects of which we shall explore in the following discussion.

Our second task is to relate the major shifts in wastewater financing occasioned by the Clean Water Act Amendments of 1987 to privatization issues. Finally we will consider how states can better utilize and leverage available resources to address the widening gap between infrastructure needs and sources of conventional funding.

This form of privatization enabled private developers to effectively reduce their cost of capital through the use of both Investment Tax Credits (ITC) and depreciation benefits available to owners of a project and tax exempt interest rates applicable to IDBs, while passing some of these savings back to host municipalities in the form of lower service fees. Even though competing with grant-funded efforts in some instances, privatization has continued to accelerate, because of certain key operational benefits, provided by the private sector, which Tax Reform has not obviated, such as:

- -- faster facility development, design, construction and start-up
- -- resulting reduced interest costs during
  construction
- -- acceptance by the private party of the majority of design construction and performance risk, including guaranteed completion date
- reduction in the need for use of the local government's general obligation debt;
- -- shifting of infrastructure costs in new community settings, to developers and new residents who stand to benefit

Clearly, the Tax Reform Act of 1986 materially reduced the economic attractiveness of this type of public/private partnership. Certain benefits previously available to private equity such as ITC have been eliminated, while others such as depreciation have in many cases been reduced. Additionally, the Tax Reform Act has impaired the feasibility of using private activity bonds, the successor to industrial development bonds, in several ways. More importantly, the volume cap applicable to these bonds has been tightened, with some estimates concluding that roughly half of all previously eligible projects may be eliminated.

The percentage of proceeds which can benefit non-governmental entities has been reduced from 25% to 10%; thereby precluding sewage treatment plants with significant industrial waste disposal responsibility. Technical rules reducing use of proceeds for ineligible costs from 10% to 5% and limiting issuance costs to 2% (included within the 5% cap) have also heightened the likelihood that these projects will need additional non-tax exempt sources of funds.

There are two obvious consequences of the Tax Reform
Act for the private ownership option. First, new and more
stringent arrangements will be necessary to make it work.
Second, alternatives more oriented toward achieving returns
from service contracting will gain greater prominence.

There are companies that are still aggressively pursuing privatization alternatives, although the field is diminished. Typically, these are companies willing to invest their own equity and to utilize taxable debt. Additionally, there appears to be a market for subordinated debt to support privatization, particularly if accompanied by some form of equity kicker. We are also seeing developers and equipment suppliers becoming involved in project finance in order to earn construction profits.

Some companies have turned their attention to other forms of private service contract arrangement. Typically, this entails public ownership -- and the concomitant loss of tax benefits to the private owner. For example, if lease-purchase type financing is used, the interest component of the rental payment will be tax-exempt. This structure may include private construction on a turnkey basis and private operation and maintenance (O&M) on a fee basis. Special activities such as sludge management, may be segmented and treated this way even in the context of overall public ownership.

An important advantage of this range of privatization options is the possibility of fine-tuning risk allocation and related credit support issues. The Tax Reform Act, however, has the effect of limiting this flexibility somewhat. Public purpose bonds -- which are not subject to the volume cap and

certain other restrictions applicable to private activity bonds

-- are only deemed to have been issued if the service agreement
is limited to 5 years, and subject to cancellation at the end
of any 3 year period. To retain public purpose bond status,
there may not be any sharing of net profits and at least 50% of
the annual compensation of the private manager must come from a
periodic fixed fee. Service agreements as long as 20 years are
permissible in certain circumstances.

In a broader sense, privatization includes a variety financial arrangements which enable public agencies to offset the cost of performing their public services in fields such as wastewater treatment. In high growth areas, the assessment of "impact fees" are used by local governments to cover costs associated with development and represent an involuntary public/private partnership to finance needed infrastructure. Under this policy, individual developers buy or reserve for future use a certain amount of capacity in an existing or prospective wastewater treatment plant. This purchase of capacity credit, as a condition for land use approval, in effect imposes the cost of facility expansion on the population causing the marginal demand, while minimizing cost increases for existing populations.

What all this means is that the private sector still can furnish the public sector with capital, construction performance guarantees and O&M capabilities. The viable

formats are changing as a result of the Tax Reform Act and other federal policies and it is therefore important for state and local governments to identify their requirements, as we are doing today.

There are three major trends that deserve comment insofar as they relate to the merits of the State of Maryland seeking increased private sector involvement in its wastewater treatment program. First, as you well know, the proportionate burden of capital expenditures for sewage treatment facilities has shifted from the Federal government to the states. Second, while total capital expenditures have dropped off considerably since peaking at \$8 billion in 1977, operation and maintenance costs show no signs of leveling off. Finally, the operation of State Revolving Funds (SRFs) — as required by the new Clean Water Act Amendments — represents an important tool for State management, but not necessarily an institutional device dispositive of all of the difficulties the other two trends promise to cause the states.

Maryland's implementation of its SRF program will pose many complex new challenges and opportunities, unlike those the state faced while administering the grants program under earlier versions of the Clean Water Act. The flexibility afforded states to leverage limited federal funds and attract private sector capital can compensate for the loss of grant money previously enjoyed. However, numerous significant policy

issues remain to be settled by the EPA and each state in formulating revolving funds.

Historically, public/private partnerships did not represent a major dent in the overall capital requirements of State and local jurisdictions. Fourteen wastewater treatment projects have been developed to date using the privatization format we previously discussed. Several of these projects have required special State privatization legislation to permit long-term service contracts sufficient to serve as credit support. Even then, supplemental credit support from private developers or from the municipality itself has been necessary to achieve financeable projects backed by some form of third party bond, insurance or other credit enhancement.

Concern with O&M costs, escalation and exposure to the effects of construction cost overruns, has led to a continued municipal interest in public/private partnerships, (even without private ownership) notwithstanding that the financing cost may be greater than that of traditional financing options. Greater attention is also being paid to risk allocation for unpredictable categories of O&M costs. This is often the case where technical expertise and external risks are involved. For example, performance guarantees regarding sludge composition or in situations where cogeneration or methane gas recovery revenues are within the scope of a project; or when ancillary activities such as fleet maintenance are within the scope of

the contract represent situtations where risks allocation is of vital importance to both the public and private parties.

private developers generally recognize that SRFs are not necessarily going to preclude the potential for a variety of forms of involvement on their part. SRFs are, of course, still in their infancy, and the extent to which they are used to tap private capital markets and otherwise employ private resources will depend on the resolution of certain policy issues here, in other state capitols and, of course, in Washington.

For example, OMB Circular A 102 requires that title to these projects be vested in a public agency when federal money is used. How will this A 102 requirement be applied when projects are financed with a mix of federal grants, SRF loans and private capital? A related question is how will lien positions be assessed when federal, state, local and private interests all have invested in the plant? To what extent will the procedural and technical requirements of Title II of the Clean Water Act continue to apply when the SRF is used as the financing vehicle, rather than the federal grants envisioned by Title II. We don't know the outcome of these policy questions, since the EPA is still developing regulations to address theseissues. We do urge you to consider the impact of such matters on privatization when you prepare implementing legislation for the Maryland SRF program.

Reliance on the SRF program by states may be expected to somewhat exacerbate existing funding problems because the impending loss of federal grants may result in capital shoftfalls for sewage treatment facilities now under development. However, movement away from the grant program may, depending upon the interpretation of the SRF program by EPA and the states, significantly increase the flexibility program administrators need to incorporate both public and private funds into the same project. Of course, the nature of public security interests in title, liens, etc. (as discussed above) must be better delineated before accurate predication about mixed funding are possible.

While the legislative history of SRFs shows that Congress specifically contemplated the involvement of private capital and intended to encourage such innovations, in fact, there are several structural aspects likely to impede private initiatives. For example, the requirement that SRFs give priority to existing facilities, currently cited for compliance violations, will limit access to the fund by new projects being undertaken in the privatization mode.

All of these trends suggest that, notwithstanding the uncertainty about pending impending regulations and the adverse impact of the Tax Reform Act on public-private partnerships for wastewater treatment, the need for creative application of privatization principles, without preconceptions about the

precise arrangements between project participants, remains great. This being the case, what recommendations can be made to achieve the desired result?

matter, is prepared to seek the involvement of the private sector in a role beyond that of public works contractor. As we have seen, the issues include not only the basic choices between public and private financing, ownership, design, engineering and construction and operation, but also questions concerning the benefits which the public sector is seeking to wring from the private sector such as equity investment, assumption of risk and cost containment.

Second, examine the Maryland statutory framework in terms of whether it provides the means to access these private sector resources. Many of these issues have already been considered and dealt with by Maryland and other States in the context of resource recovery facilities or in more generalized privatization statutes. Some privatization statutes relate to generic issues concerning the types of relationships which private parties may have with the State and local governments and under what circumstances government property, credit or other legal rights may be enlisted to support a public-private partnership.

Third, attention must be given to what kinds of service agreements with private parties may be permissible particularly issues such as duration, financing, risk allocation, put or pay conditions, revenue sharing, responsibilities for changes in law and applicability of utility regulations. This is important both from the standpoint of using the service contract as security for project financing and as the primary revenue source to a private developer.

Fourth, procurement laws must be reviewed to determine if they are sufficiently flexible to pick the best private operator in terms of performance undertakings and recognized technical innovation.

The State may also wish to focus on areas where it particularly wishes to have contracting flexibility so as to address economic conditions underlying its wastewater treatment program. These might include incentives to overcome the lack of technical innovation during the Federal grants period. Or Maryland might focus on the range of permissible arrangements which may apply to private operators of wastewater treatment facilities. The flexibility of municipalities to work out development impact and capacity fee arrangements to fund wastewater management should also be explored.

Finally, the relationship of potential technological and operational improvements to the functioning of the new SRF should be considered. The value of private capital

contributions, the maximization of economic incentives for construction cost containment and O&M should be weighed when implementing legislation for SRF program is drafted here in Maryland. It will be useful to consult with EPA as they prepare regulations which frame the range of presumable flexibility for private sector involvement. This is an area of evolving thinking on its part as well.

Clearly all of the foregoing should not be done in a vacuum -- based on hypotheses by governmental officials as to how the private sector might act. If privatization is to work, programs are most effective when structured in consultation with the private sector and upon taking into account effective incentives for private parties undertaking public service initiatives.

In conclusion, privatization is <u>not</u> dead -- it is evolving to provide a variety of service packages for a variety of rewards. Involving the private sector in responding to the long-term trends that threaten to leave a massive infrastructure gap is one of the most promising strategies for meeting wastewater treatment needs into the 21st century. Concrete regulations and laws can be developed -- both in the privatization and SRF contexts -- with appropriate consultation, but only after possible objectives are clearly delineated. That is why this Committees task of defining Maryland's anticipated sewage treatment needs is so very important. Once the public sector

has defined the scope of work, the private sector can be enlisted to help provide the resources needed to get the job done. Because -- and this is a point often missed, and which hopefully emerged from these remarks -- privatization is a challenge to govern better; it is not a delegation, it is a partnership. And the first rule of a good partnership is to write a good agreement.